COAL MINING

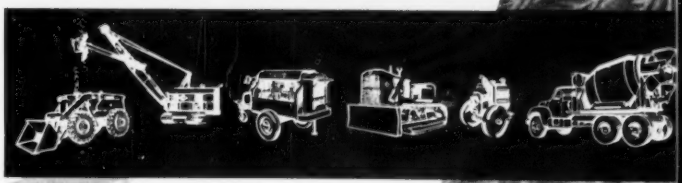
UNIVERSITY MICROFILMS
313 N 1ST ST
ANN ARBOR, MICH

December, 1958 Volume 36, No. 12

Best Wishes for a **Merry Christmas** *and a* **Happy New Year!**

Du Bois

Pittsburgh

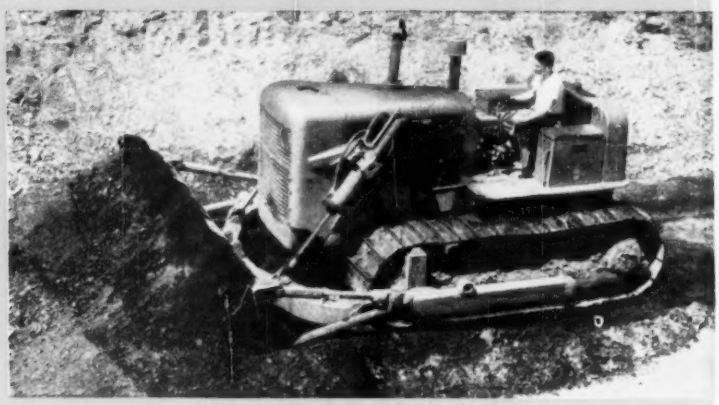


Highway

HIGHWAY EQUIPMENT COMPANY
Pittsburgh • Du Bois

Allis-Chalmers HD-21 . . . P&N Coal Co., Punxsutawney.

There's an ALLIS-CHALMERS tractor for every mine job!



Allis-Chalmers HD-16 . . .
Freebrook Corporation, Kittanning.

Allis-Chalmers HD-11G . . . William Fiore, Russelton.

Allis-Chalmers HD-6G . . .
Jefferson Coal & Coke Co., Canonsburg.

HIGHWAY EQUIPMENT COMPANY
6465 Hamilton Ave. • Pittsburgh 6, Pa.
40 Hoover Ave. • Du Bois, Pa.

AA-6768

Highway

CUT MINING COSTS

WITH *HEAVY – RUGGED – POWERFUL*

McCARTHY AUGER DRILLS

VERTICAL

MODEL 106-24

World's Fastest Heavy-Duty Vertical Auger Drill

Bores faster, deeper, larger dia. holes than any other auger drill. New gear reduction unit slows auger rotation for operation in hard rock formations. Drills 8" and 9" dia. holes readily in shale and sandstone formations, drills larger dia. holes up to 24" dia. in softer formations.

Write for Bulletin M-100

FINGER-TIP CONTROL

Gives Desired Rotating Speed Of Auger

HYDRAULIC FEED

Provides Any Speed Up To 6 Feet Per Minute Horizontal Feed Of Drill

COAL RECOVERY

"Walks" from hole to hole to auger high-quality Bonus Coal

An Ohio miner removes 450 tons of coal in each 6 1/2-hour working day with this Model 14 36-42 x 12' McCarthy drill, operated by two men. He drills 42" dia. holes 144' deep. Auxiliary conveyor eliminates spillage at hole. It operates on either side of drill for working blind cut. Twelve different models of McCarthy Coal Recovery Drills mine low-cost "bonus coal."

Write for Bulletin M-101 and M-102

HORIZONTAL

MODEL 104

Lowest Drilling Costs per foot, Self-Propelled or Truck-Mounted

Bores up to 12" dia. holes to 150' depth faster, cheaper than any other horizontal drill. Requires less working space, saves many man-hours. . . operates easily in tight, hard-to-reach locations.

Write for Bulletin M-105

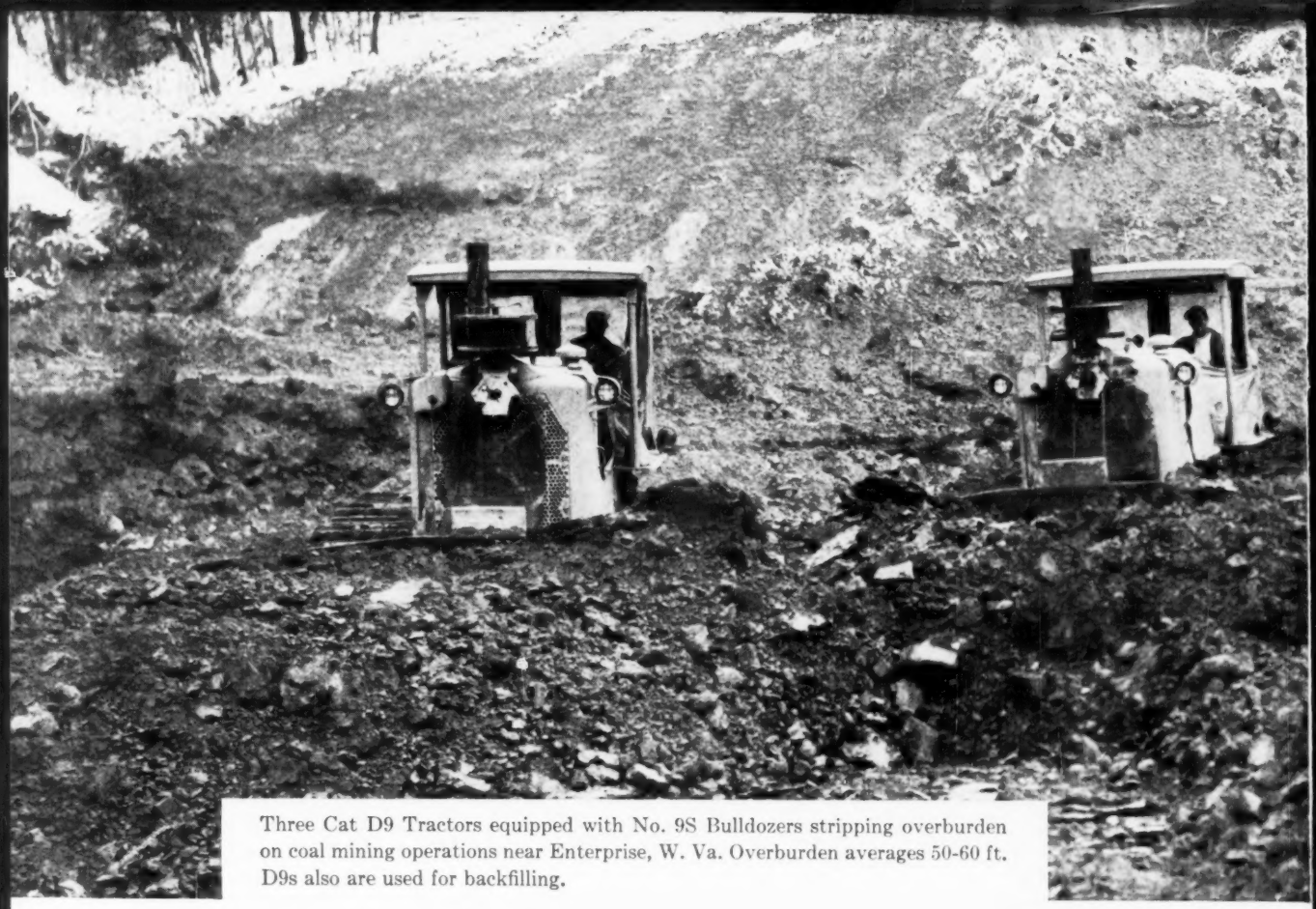
THE SALEM TOOL CO.

SOUTH ELLSWORTH AVENUE

SALEM, OHIO. U. S. A.

SALEM

Published monthly by Modern Mining Publishing Company. Publication Office—Advance Printing & Litho Co., Erie, Pa. Editorial and Executive Offices—Erie, Pa. Pittsburgh Offices—P. F. JASIK, Publisher, 4575 Country Club Drive, Pittsburgh 36, Pa. Price: In the United States, $3.00 year; all other countries $5.00. Single copy 25 cents. Entered as second class matter at the Post Office at Erie, Penna., under the act of March 3, 1879.



Three Cat D9 Tractors equipped with No. 9S Bulldozers stripping overburden on coal mining operations near Enterprise, W. Va. Overburden averages 50-60 ft. D9s also are used for backfilling.

Three D9s stepped up profits in

Profit in a strip mining operation depends on low-cost, high-production earthmoving. That's why you see more and more Caterpillar D9 Tractors at work in successful strip mines. This "King of the Crawlers" is a top producer, day in and day out, even under the most difficult conditions.

Three D9s set the pace for United Coals, Inc., of Enterprise, W. Va., rounding out a 100 per cent Caterpillar team that includes a D8, a No. 977 Traxcavator and three Cat wheel Tractors with Athey wagons.

Lawrence A. Costelac, United's secretary and treasurer, says, "We used to have three different makes of machines. But we went to the exclusive use of Caterpillar equipment because it proved more dependable, more productive and better from a mechanical and service standpoint.

"We purchased three D9s when we realized the tough conditions and tremendous yardage to be moved in our present operation. We're getting the performance we expected—and then some!"

Your Caterpillar Dealer has a complete line of crawlers, ranging up to the mighty D9. Call him today for a demonstration on your job. Just tell him when you want the equipment there.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

this West Virginia mining operation!

Balance, flotation and ease of operation are big features of the D9, says Lawrence A. Costelac, secretary and treasurer of United Coals, Inc. "I like Cat-built Tractors —they just keep on running." On many strip mining operations, a D9 equipped with ripper breaks up the seams of coal.

HERE'S WHY THE D9 IS BEST FOR STRIP MINING

- 320 HP at flywheel.
- 30-ton weight.
- Exclusive Caterpillar oil clutch—plates cooled and lubricated with oil, rarely need adjustment.
- Optional torque converter transmission.
- Heavy-duty steering clutches with finger-tip steering. Power-boosted controls.
- Extra-rugged frame and final drive.
- Massive 7-roller track frame.
- Full line of attachments.

BECKWITH
MACHINERY CO.

BRADFORD, PA. ERIE, PA. CLEARFIELD, PA.
SOMERSET, PA. CLARKSBURG, W.VA.

6550 Hamilton Ave. • PITTSBURGH
Phone MONTROSE 1-6900

• A new processor of magnetite, Mineral Mills, Incorporated, has been established with headquarters and plant in Pittsburgh. Earl C. Payne, for many years a consulting engineer with Consolidation Coal Company, is president.

The firm will supply magnetite to companies cleaning coal, gravel, gypsum and other minerals by the heavy media separation and washing process. Mineral Mills has acquired the magnetite operations previously conducted by Orefraction, Incocrporated of Pittsburgh.

Widely known in the coal industry, Mr. Payne concentrated in fuel, equipment and coal application problems for Consolidation Coal. He also served in a number of sales positions.

Earl C. Payne, Mineral Mills, Inc.

Mr. Payne was among those instrumental in establishing the Fairmont Coal Bureau in 1942. This or-
industries that liberalizing equipment designs to permit burning Fairmont coal yas sound engineering. The result has been extensive use of this type of fuel.
ganization convinced utilities and

He also was a leader in the industry-wide engineering and market development program aimed at encouraging use of coal. For 20 years Mr. Payne has been chairman or member of numerous coal research committees. He is a graduate of the University of Michigan, a Fellow of American Society of Mechanical Engineers and a licensed professional engineer.

• Baldwin-Lima-Hamilton Corporation, Construction Equipment, Division, Lima, Ohio, announces two new additions to the LIMA line of power shovels, cranes, draglines and pullshovels. These new machines are designated as Types 64 and 64-SC. Both machines are equipped with the time tested LIMA "precision" air control.

The Type 64 has a rated capacity of 40 tons when equipped as a crane. When equipped as a shovel, it has a 22-ft. boom, 17-ft. dipper handle and 1¼ cubic yard dipper. Change over from shovel to crane, dragline or pullshovel is easily made in the field.

The Types 64 and 64-SC have identical truck bases. Two widths of axles and two lengths of crawler side frames are available. Standard crawler is 13'-3" long and 10'-8" wide with 30 treads. For special crane and dragline service, requiring an extra long, wide crawler, a 17'-1½" wide crawler with a spread of 14'-0" and 42' treads can be furnished. Counterweight and crawler side frames are removable for meeting highway load restrictions when it is necessary to trail the machine.

The Type 64-SC is designed for special crane service and has a rated capacity of 50 tons. Features and available equipment for crane service include: power load lowering device, independent propel, hoist drum reversing device, third drum attachment, safety boom stop, pin connected boom of high strength alloy steel tubular type construction welded throughout with a cross section of 48' x 48". The boom is built in two sections with provisions for adding 10'-20'-40' lengths to extend the boom to 150. Gantry is the high, folding type with telescopic legs. It is power raised or lowered by means of the boom hoist cables. The folding gantry folds to cab height for passing under low clearances.

Gasoline, diesel or electric power with torque converter provides ample power for hard digging and heavy lifts.

Write Baldwin-Lima-Hamilton Corporation Construction Equipment Division, Lima, Ohio, for complete details or the LIMA distributor near you.

• Hugh B. Lee, Jr., was elected president of the Maumee Collieries Co., Terre Haute, Ind., at the firm's recent annual meeting. In moving up from executive vice president, Mr. Lee succeeds his father who was elected vice chairman of the board of directors.

COAL MINING

Vol. XXV December, 1958 No. 12

Contents

Here and There in the Coal Industry 7

Do You Know 7

Hydraulic Coal Mining Tested in British Coal Mine 9

Let's Talk Track 10

Annual Meeting Independent Mineral Producers Association 20

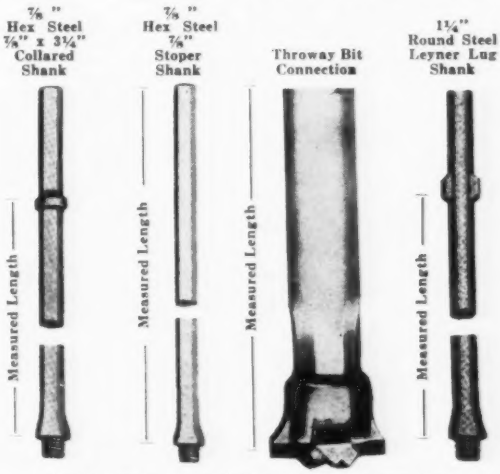
Moving Overburden at the ABC Coal Company Near Lisbon, Ohio 23

Walker Machinery Co., Breaks Ground for New Building Site 24

Advertiser's Index 32

TOOLS from MARS

Pittsburgh Call Zenith 0861 • Mars Call National 5-4688


⅞ " Hex Steel ¾" x 3¼" Collared Shank
⅞ " Hex Steel ⅞" Stoper Shank
Throway Bit Connection
1¼" Round Steel Leyner Lug Shank
Measured Length
Measured Length
Measured Length
Measured Length

Drill Steels Furnished with Any Type End
Reconditional Service

ROBERT T. WOODING'S INC.

MARS, PENNA.

Distributed by

LEE SUPPLY CO.

P. O. BOX 3 CHARLEROI, PENNA.

PHONE HUDSON 3-8933

Published by

Modern Mining Publishing Company

4575 Country Club Drive

Pittsburgh, Pa. Phone TU. 1-9411

P. F. JASIK, Publisher and Editor

☆

Printed by

ADVANCE PRINTING & LITHO CO.

1118 Chestnut St.

Erie, Pa. Phone 2-2780

Ripper-equipped Caterpillar D9 Tractor breaks seam of shale over a 48 inch seam of metallurgical coal for Bolt Mining Company, near Beckley, W. Va. About 30 to 35 feet of overburden covers the seam; 'dozers and shovels are used to strip the clay and sandstone down to the shale. The D9 and ripper takes the place of two wagon drills, according to the owner, plus saving the cost of explosives. From 6000 to 7000 yards of 'burden are removed from the mine daily.

•

IT PAYS TO ADVERTISE IN COAL MINING

•

SALEM "HERCULES" AUGERS FOR ELECTRIC DRILLS

Made to Withstand High Drilling Speed Whip And Torsional Strain Of Electric Drills.

Drills holes faster — Will not snap off shank or chip points — Outlasts four or five ordinary augers.

THE SALEM TOOL COMPANY EDgewood 7-3416 SALEM, OHIO, U.S.A.

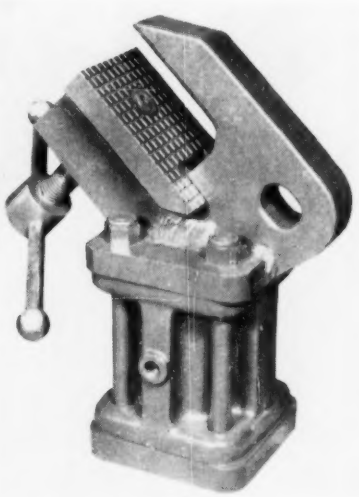
• A new portable air vibrator that can be attached to almost any type of frame, bin, box or table without use of bolts, is now on the market.

This portable Cleveland 3" VGV air vibrator has jaws that open to 2 inches and is attached simply by tightening the vise-like clamp which is a part of the vibrator.

A big advantage of the new VGV lies in the fact that is is completely portable. No bolts, brackets, or pins are required to mount and dismount the vibrator.

This vibrator also has an eye through which a hoist hook may be attached for ease in moving the vibator around the shop.

The overall dimensions are 14 ¾" x 13" x 6" weight approximately 90 ponds. It developes 3600 vpm. at 60 psi. with air consumption of approximately 20 cfm.



For further details con'act the Cleveland Vibrator Company, 2828 Clinton Avenue, Cleveland 13, Ohio.

McCarthy Highwall Auger owned by O. W. Leishman recovering Ohio No. 6 coal near Rogers, Ohio. The auger is 30 inches in diameter and is working in 32 in. seam.

Cat D9 Tractor 'dozes overburden from a 48" seam of West Virginia metallurgical coal near Beckley, W. Va. About 35 feet of 'burden covers the seam of Bolt Mining Co. It is drilled and shot before the tractors move in to cut off the first 20 to 25 feet of clay and sandstone.S hovels handle the next five feet and a ripper-equipped D9 breaks the shale deposit on top of the seam.

From 6000 to 7000 yards of 'burden are removed from the deposit each day. To keep the fleet of 4 D8s, 2 D7s, 2 D9s, shovels, draglines and 6 Eucclid wagons operating, Bolt maintains its own service with a part inventory of more than $15,000.

• Austin Powder Company, Cleveland 13, Ohio, announces manufacture of two new cutter bits for continuous mining machines.

AP-10 End Mill Type Cutter Bit

Known as AP-10 end mill type and AP-10D plug type, they are said to provide maximum service life even under the most severe cutting conditions. This is achieved by virtually eliminatng the major causes of bit failure — tip loss and shank breakage.

Design of the tip area on each model features a large surface for brazing of the carbide insert. Efficient tool performance is said to be further assured by use of special alloy steel shanks.

For additional data, write the manufacturer, Austin Powder Co., Cleveland 13, Ohio.

HERE AND THERE IN THE COAL INDUSTRY

● Harry M. Tibbs, administrative assistant to the president of Truax-Traer Coal Coal., was elected president of the Kanawha Coal Operators Association at the 54th annual meeting. Paul Morton, president of Cannelton Coal and Coke Co., was elected vice president and L. Newton Thomas, president of The Carbon Fuel Co., was elected treasurer. Harry G. Kennedy was reelected executive secretary. The membership reelected the board of directors.

● I. J. Richardson, president of Harman Mining Corp., Harman, Va. was elected president of the Operators' Association of the Williamson Field at the annual meeting Oct. 31 at Williamson, W. Va. Mr. Richardson, who had been serving the Association as vice president, succeeded R. D. Jones of the Kentland-Elkhorn Coal Co., Dunlap, Ky. L. E. Woods, Jr., of Crystal Block Coal & Coke Co., Huntington, was elected vice president, and L. E. Tierney, president of Eastern Coal Corp., Bluefield, was reelected treasurer. Joseph J. Ardigo was reelected executive secretary of the Association.

● The fast moving tempo of the coal business, with its emphasis on modern transportation was amply illustrated by a recent incident at Highway Equipment Company's Du Bois, Pa., branch.

A Shawville-Lingle Coal Co. heliocopter carrying owner Burton Lingle, his pilot and mechanic, landed beside the Highway Building on Hoover Ave. Mr. Lingle then quickly inspected stripping equipment he had ordered, made some additional purchases and left —all in a matter of minutes.

Before leaving, Mr. Lingle stated that the heliocopter would make regular runs every second or third day to pick up purchases.

● The appointment of Larry Cook, of Columbus, as chairman of the National Coal Association's Land and Water Use Advisory Committee, was announced today by President Frank F. Kolbe. Mr. Cook is executive vice president of the Ohio Reclammation Association.

Larry Cook, of Columbus, Ohio, who is chairman of the National Coal Association's Land and Water Use Advisory Committee. Mr. Cook is executive vice president of the Ohio Reclamation Association.

R. L. Ireland, of Cleveland, is chairman of the policy-making NCA Land and Water Use Committee, under which the advisory committee operates. The principal coal-producing states of the nation are represented on the committees.

The Ohio Reclammation Association is an organization of surface mining operators engaged in rehabilitating strip mine lands for its members.

● PITTSBURGH — Charles B. Tillson, Jr., former general superintendent of Crucible Steel Company of America mines, has been named assistant manager of the Company's Fuel division.

In his new position he will exercise general supervision over the Company's coal mines at Crucible (Greene County), Pa., and Hughes-ton, near Charleston, W. Va., as well as river transportation. This announcement was made by George E. Muns, manager of the Fuel division.

Do You Know?

● Pieces of calf bone and also bovine bone ground into a paste have been used to replace bony defects about the face, plastic surgeons from Duke University Medical School have reported. A five-month follow-up of the solid bone cases indicated firm union between the graft and adjacent bone. No evidence of absorption was noted in an 18-month follow-up of the bone paste cases. Further study is planned before recommending general use of the material in reconstructive surgery.

● A grassroots movement is beginning what promises to contribute much towards solving a national problem, our dwindling timber resorces.

Represntatives of the 4,5000,000 small woodlands owners have scheduled meetings throughout the nation to see what can be done to get the best use out of the timber they own. The aim is to bring the trees and forest soil—which includes some of the best land in the United States—under scientific management.

The first of these meetings was held in Wausau, Wis.

Currently, many of the small woodlands owners are neither getting as much income out of their forests as they could, nor growing as much marketable timber as the land can yield.

Some 55% of all commercial forest land is owned by farmers and other small landholders, the U. S. Forest Service reports. There is a growing need for timber, and successful management of the small forest could add millions of feet of timber to our resources.

Interest in the timber resources problem is "boiling up," George Vitas of the Forest Service said. Landowners are getting together, within their states or in cooperation with negihboring states, to discuss problems and sample opinion on how to get more out of their woodplots. Local commercial groups as well as Forest Service representatives are cooperating.

Twenty-two meetings, being held from now through November, may result in the nation's fulfilling its timber needs: twice as much wood as being used presently, available by the year 2000.

Page Model 726 Walking Dragline with 12 cu. yd. bucket and 150-foot boom.

That's LOW COST STRIPPING!

Uncovering **500 - 800 - 1,000 tons** a day—
removing **50 - 60 - 80 ft.** of overburden

You get MORE YARDAGE AT LOWER COST when you put a Page uncovering your coal. See actual records of Page Walkers stripping at a profit, where smaller machines lost money (we would like to send you some.)

A top profit-maker is the Page Model 726 with 150 ft. boom and 12 cu. yd. bucket. You can get Pages up to 22 cu. yd. capacity.

They have the SPEED. Page Walkers swing unusually fast — have a correspondingly fast hoist line — quicker cycles and more yardage.

And you get extreme low-cost operation with Page's V-type Diesel engine, designed for dragline work with bigger bearings and pistons, slow speed. (Furnished with Electric Power if you want it.)

GET AN ESTIMATE OF YOUR OWN STRIPPING COST with a Page. We'll be glad to figure it from accurate records of what has been done. Write, wire or phone —

FRANK SWABB EQUIPMENT CO.
Hazleton National Bank Bldg., Hazleton, Pa.
Phone GLadstone 5-3658

For High Production and Lowest Operating costs—

NOTHING equals this PAGE 700 series
SINGLE DECK WALKING DRAGLINES

Hydraulic Coal Mining Tested in British Coal Mine

BY LEO WALTER, GLOS., ENGLAND

The coal mining industry in Great Britain has been modernized during the last years to a great extent. As is known, the whole industry is nationalized and operated by the National Coal Board. In the following a brief survey is given dealing with practical experiment using hydraulic coal mining in a Welsh coal mine, operated by the Coal Board. It should be realized that at the time of writing no final results have been obtained, but the American coal mining industry will do well to watch further developments carefully.

EXPERIMENTAL HYDRAULIC COAL MINING

A completely new system of getting coal is to be tried out in a first experimental installation of hydraulic mining at Trelewis Drift Mine near Treharris in Wales. In this process the coal is extracted by the power of high velocity water jets directed at the seam from a powerful hose, called a monitor, which can deal with high water pressures. When the coal has been broken down, the water jet is used again to clear the floor of the working place and to drive the coal along to the point of collection. In the initial trials coal will flow from the face into an open channel or flume and be carried to a screen where all coal above 2 mm. in size will be separated and transferred to the normal conveyor belt system; the slurry (a mixture of fine coal and water) will be pumped up a 6-in. dia. pipe to the surface of the drift mine where the fine coal will be removed and the clarified water returned to the system. If the trials prove successful, steps will be taken to pump lump coal through the pipe line to the surface.

ADVANTAGES CLAIMED

Hydraulic mining, which is practiced extensively in Russia and to a lesser extent in Poland and New Zealand, gives a high rate of output per man shift; the equipment is easy to operate and to move, and although a considerable amount of power is required to supply high pressure water to the monitor, this can be generated on the surface where the plant is accessible and does not require expensive housing or flameproof electrical equipment. There is, of course, virtually no explosive danger with water power and apart from the pumping plant the equipment used for getting the coal is quite simple.

ROOM AND PILLAR SYSTEM

Mining at Trelewis is on the room and pillar system in which the headings or roadways are driven through the coal leaving large pillars which can either be left for support, or partially or completely removed as operations move backwards down the headings. The drift is 1030 ft. long and goes down at a gradient of 1 in 4 to a point where it meets the 5 ft. 9 in. thick Brithdir seam, which in turn rises at a gradient of 1 in 14 and extends to a distance of about 2000 feet.

Only the headings have been driven at this mine and it is proposed to start hydraulic mining on the pillars, starting from the highest point of the boundary and working backwards down the slope towards pit bottom, a method which will assist the broken coal to flow back more easily. The monitor will be placed at the end of a heading and its $^3/_4$ in. dia. jet will be projected at each side of the coal walls in turn. The Brithdir coal is of medium hardness and althhough it contains some bands of stone, it is not anticipated that there will be any difficulty in removing it from the seam with the pressures available. It has been estimated that water pressure of 600 psi is sufficient to break down the cofter coals and pressures up to 1200 psi for the hard and denser coals.

Only four men are needed to work each monitor, one to control the monitor and the others to attend to the pipes and flumes and fix supports. Russian experience suggests that production can be as efficient as in opencast mining, or between three and five times higher than with conventional methods but there is no doubt that the only way to obtain reliable data regarding working pressures and the suitability of equipment is to proceed with pit trials.

The hydraulic mining project is a natural sequel to the Board's interest in the hydraulic transport of coal by pipeline. Work at two installations, one at Woodend Colliery is being pumped up a vertical shaft, and another at Markham Colliery, Derbyshire, where the haulage of lump coal through a 1000 ft. long pipe on the surface is being studied, will continue. The main project of these two experiments is to develop more efficient methods of pumping and of transferring coal into a pipeline without losing pressure. The Trelewis project could be adapted for a hydraulic haulage system up the drift to replace the existing conveyors if the experiment in hydraulic mining proves successful.

The cost of the trials is estimated to be $48,000 over a six months period, and mining is expected to begin at the end of 1958.

Let's Talk Track

By THOMAS C. KINGSLEY
Service Department, Caterpillar Tractor Co.

In economists' language, a track-type tractor is a capital good. In plain words this simply means that it's used to make money. No matter how a job is figured a good share of the profit depends on what it costs to keep machines operating. Nobody wants to replace track before it is absolutely necessary. So it's just good business to take care of track parts and rebuild them at the most economical time.

Modern track groups are the result of continuous research, design and improvement over a long span of years. Moreover, today's track may look like yesterday's but there is a world of difference in performance. To illustrate this fact, look over the jobs today's crawler tractors are doing—ripping rock, dozing out huge stumps and pushloading giant scrapers. Only track that is as modern as today's job can stand up to these conditions. But track is no different than other parts of a machine. No matter how well it's built, proper care is essential to gain the best performance.

How long should track last? Of course, any answer to this question depends on a lot of things—the tractor itself, the job, soil conditions, maintenance and the operator. Economical track service life *can* be obtained by recognizing track problems and knowing what to do about them.

Part 1

Applications and Attachments

The first consideration of any discussion of track problems starts with the type of jobs a machine encounters. The manufacturer of the track-type tractor markets a basic machine with standard equipment for application under most job conditions. The marketing system does not burden any owner with the purchase of expensive, unwanted and unnecessary equipment. To obtain more economical service life under severe operating conditions, the manufacturer makes available a selection of attachments and special parts which will satisfy all but the most extraordinary conditions. The application determines which attachments are most economical and most needed.

For example, the use of a track-type tractor in rock work presents operating conditions and wear characteristics very different than those encountered in routine dirt work. Track shoes, rollers, idlers, links, pins, bushings, final drive sprockets, guards and even hardware wear longer in dirt operations than in rock. Tractors operating in rock must be equipped to combat increased depreciation if the owner expects to attain the longest possible service life and best value for his investment.

In this case, track shoes are the first parts to consider. Wide track shoes are the most satisfactory when flotation is needed for operating in mud, gumbo and some dirt work. Quite naturally, track shoes are most susceptible to breakage where rock is encountered. Wide track shoes have greater overhang beyond the track chain than narrow shoes. Loads applied to the outer edge of the wide shoes create greater leverage. The result is that wide shoes are more frequently damaged while working in rock than are narrow shoes. There is another advantage of narrow shoes. When working in hard material the narrow grouser will penetrate deeper, increasing traction.

For those operations when a tractor is called upon to work almost exclusively in rock, special heavy duty track shoes should be used. These shoes may be of either double grouser or flat design de-

Track Roller Guards are bolted to track roller frame of this Caterpillar D7 Tractor. Guards soon pay for themselves by reducing maintenace and parts replacement resulting from rock work.

pending upon the amount of traction needed. In especially abrasive rock a manganese alloy shoe may prove to be the most economical investment.

When a track-type tractor is working in rock, don't overlook the advantages of track roller guards. From the standpoint of economy, these attachments will pay for themselves many times over. Field experience has proved that track roller guards effectively protect track parts and extend service life. These guards are designed to keep rocks from feeding in and being crushed between the track rollers and the track.

In addition to abrasive wear between the rollers and the track links, rock which feeds into an unprotected track causes many other difficulties. The crushing impact causes breakage of links, roller flanges and other parts. Rock causes external wear on bushings, idler rims and sprocket teeth. The impact of the crushing action slashes the life of the track roller bushings. Rock can cause track to tighten excessively around the sprocket. Stretching out track causes the link pin and bushing bores to expand, resulting in loose pins and bushings.

Track roller guards help hold the track on the rollers on steep slopes. These attachments also help reduce wear on roller flanges and idler pilot rims. Rock guards are not unimportant gadgets; they are essential for economical operation in rock and over rough terrain.

Rock isn't the only material dictating the use of alternate parts or attachments. Snow, mud and wet sand have a tendency to "pack" in the track and cause severe strain on all track components. To prevent material from building up and clogging tracks, install special snow shoes which have a cut-out section in the center between the bolt holes, and snow sprockets which have deeper recesses between the teeth than standard sprockets.

The advent of large push tractors has also brought about the need for other special track shoes. The width of the push tractor is usually wider than older makes of scrapers. The outer edge of the track shoe rides up out of the scraper cut, forcing the track in toward the tractor. This condition causes the sprockets to rub against the outside link as well as causing accelerater wear to roller and idler flanges. Where flotation is not a factor, narrow shoes offer the best solution to the problem. If flotation is required, when working in such materials as sand or mud, offset shoes should be used that match the cut of the narrowest scraper on the job.

Consider the selection of track equipment and attachments which are available for use in other than average conditions. The tractor which is equipped to meet the problems of the job will give the best performance.

The Role of the Operator

Once a tractor is equipped to accomplish a job in the most economical manner, the operation of the tractor should be considered. If an operator understands the importance of proper machine operating techniques, he can do much to lengthen track life.

Track rollers distribute the tractor's weight over a large area. Proper operating techniques let each roller carry its fair share of the load. Reckless, "cowboy" operation over rough, rocky ground or other obstacles slams the impact from one track roller to another. This is not only one of the quickest ways to shorten roller life, (particularly that of the front roller) but it is also a fast way to reduce the life of the idler bearings and other track parts. The track-type tractor is a tough, rugged piece of machinery; but, why heap on abuse? After all, it proves nothing except a disregard for economy and downtime.

Another damaging practice is "spinning" track. This practice provides no more drawbar pull than a spinning rubber tire provides rim pull. But when the rubber is burned off a $3,000 tire the practice is soon halted. While the spinning of track doesn't usually draw the same immediate response, it, too, is "burning off dollars of iron." This is especially true when track is allowed to churn, digging in and over abrasive material. A little load adjustment or different approach can save that "burned off" track life.

Portable hydraulic track presses, such as the one shown here, greatly reduce the amount of downtime necessary to turn pins and bushings. This type of field service is becoming widely accepted throughout the construction industry.

When a tractor is operated in mud, clay or gumbo, material sometimes packs around the rollers, and usually builds up on top of the guards and around track carrier rollers. In freezing temperatures, packing causes even more trouble. When mud packs around a track roller or a carrier roller, it tends to "freeze" the roller and prevent it from rotating freely. Once roller rotation is stopped, the track links slide over the roller surface causing rapid wear to both the roller and the track rail surface. In a very short time, flats are worn on the roller. It takes engine horsepower to accomplish this rapid wear, so profit is actually lost in two ways.

It's easy to correct this problem. Drive the tractor to dry ground. Run forward and backward to work off the excess mud. If water is handy, a wash down of the track group will help. If no such facilities are available, a little time spent (periodically) in "spade work" to remove the mud will be a good investment.

Sometimes a tractor will freeze to the ground overnight after operation in cold, muddy conditions. To prevent track damage when breaking it loose, clean off as much mud as possible. A common method of avoiding a freeze-in is to park the tractor on planks, logs or even brush to keep the tracks up out of the mud.

It is also a good idea to keep an eye on track adjustment when operating in mud, and sand. These materials pack and tighten track, robbing engine horsepower, and subjecting track parts and final drives to great stresses. It may be necessary to loosen the track adjustment during muddy operation to provide the desired slack.

Operating in snow presents much the same dangers as operating in mud. It is essential that the track group be kept as clean as possible and the rollers kept free to rotate.

Part II

GENERAL TRACK MAINTENANCE

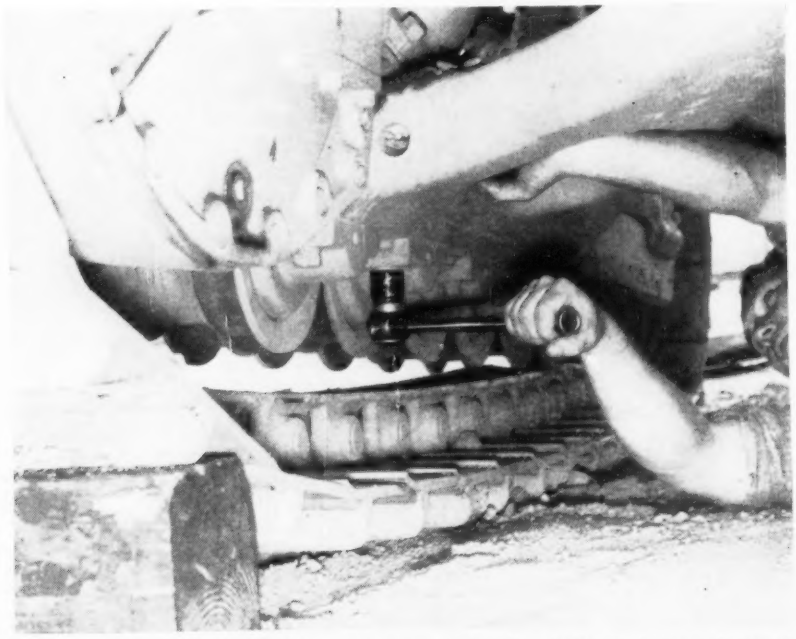
Any successful maintenance program is based on preventing trouble before it starts. Maintenance should be organized so that every man knows his exact responsibilities. Certainly, the operator should play an important part in this program. He, more than anyone, is in a position to know when a machine isn't performing as it should. He should promptly report any condition which requires repair or adjustment to the designated maintenance supervisor.

The first item on any maintenance program for the track group is adjustment. Tracks should be inspected daily for proper adjustment. If tracks are allowed to run too loosely, they will sag between the points of support. This causes additional movement and wear between the contact surfaces of pins and bushings. When a tractor with loose track adjustment is driven at high speeds, the track can be thrown off. A thrown track can be expensive both from the damage to its parts and from the downtime involved.

Tracks that have to be adjusted with a wrench are rarely overtightened. But, with tractors equipped with hydraulic track adjusters the opposite is true. All that is needed to adjust this type of track mechanism is a few shots from a lever-type grease gun. The hydraulic pressure puts the track in tension. A few extra shots and the track can be overtightened. Overtightened tracks can cause overheating of pins and bushings. These parts can become hot enough from friction to temper the heat treated metal and reduce its hardness. Loss of hardness increases wear and cuts service life.

Many tractors equipped with two-position idlers that may be placed in a high or a low position. For most applications, idlers should be in the high position. However, when a tractor is equipped with heavy front mounted equipment, change the idlers to the low position.

When the tractor is equipped with a bulldozer, for example, better balance is attained with the idlers in the low position. The track shoes under the idlers are then in the same plane as the shoes under



Rock work on other rough jobs may cause end collar bolts to become lossened. Periodically inspect and tighten both the inside and outside end collar bolts. Easier access to the inside of the track roller frame is possible by driving the tractor up on blocks.

the rollers. Track shoe grousers, however, are subjected to greater wear since there is a scrubbing action on each grouser as it passes under the idler.

Another major part of any maintenance program is lubrication. Machinery manufacturers continually strive to simplify lubrication requirements. There is always risk in establishing any lubrication interval. If intervals are too frequent, there is always the danger of over lubrication. Blown seals and damaged rollers are usually the consequences. If intervals are too far apart, there is the tendency to forget about those parts. Most manufacturers agree that a middle-of-the-road recommendation is best. This minimizes the danger of over-lubrication, but still points up the need for periodic servicing.

There is only one general rule for track roller lubrication—FOLLOW THE MANUFACTURER'S RECOMMENDATIONS. A manufacturer specifies the interval for lubrication of track rollers, idlers and carrier rollers in average conditions. Sometimes the lubrication interval must be reduced when the tractor is operating in deep mud or water. Since all lubricants are not the same, the manufacturer also specifies the type of lubricant that will provide the best service in its product. These recommendations are backed up by years of research and field testing.

Most manufacturers' lubrication instructions are illustrated and explicit. When followed, they greatly assist in getting the most from a machine. However, these instructions can't eliminate the possibility of introducing trouble. Contaminated lubricants, fittings that are not really clean before used, over-lubrication or under-lubrication are major causes of shortened service life.

When a hand operated grease gun is used to apply lubricant to roller and idler bearings, apply only the amount needed to feel a slight additional resistance on the gun handle. Any pumping after this resistance is felt will create enough hydraulic pressure to damage the seals. If pressure can't be built up it usually indicates a damaged seal. Damaged seals should be replaced immediately.

Power operated pressure lubricant dispensers deliver lubricant in such high volume and pressure that a relief valve should be installed in the lubricant line to prevent seal damage. Be sure the relief valve has the proper initial pressure setting. It is also a good idea to periodically recheck that setting. Many rollers have gone without lubricant because a relief valve was unseating at too low a pressure.

Under no circumstances should pins and bushings be lubricated. Dirt combined with oil makes an excellent grinding compound. Lubrication of these parts will greatly increase the rate of wear.

The daily inspection should include a critical look at track hardware. Bolts and nuts on the track group should be checked regularly. Since most track parts are subjected to continued stress and shocks, loosened nuts and bolts should be retightened immediately to prevent shearing, loss or damage to the part which they secure.

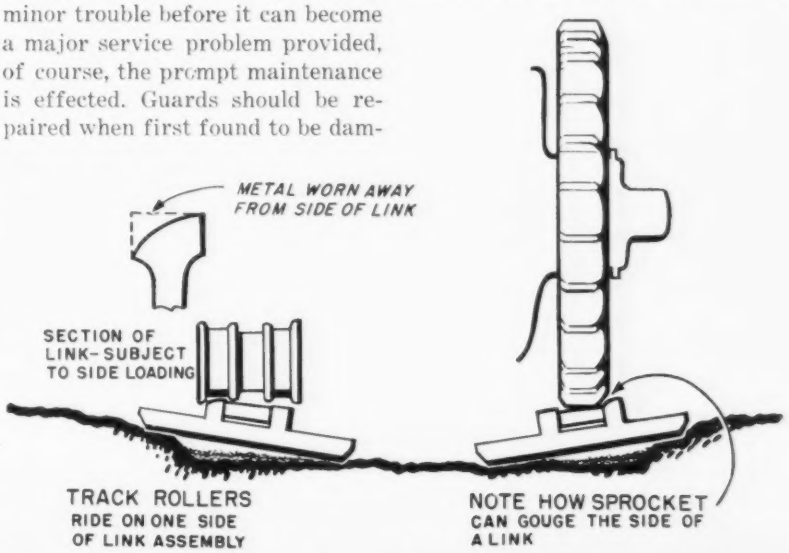
Regular inspections will reveal minor trouble before it can become a major service problem provided, of course, the prompt maintenance is effected. Guards should be repaired when first found to be damaged, since a damaged guard usually offers little protection.

Inspection will reveal major problems too. For example, if an idler is misaligned, it will be evident when the track links or idlers are examined. A misaligned idler will cause wear on the pilot rim section of the idler, wear on the sides of the track links and wear on the roller flanges. On most tractors it is a relatively simple matter to adjust idler alignment with shims located beside the idler bearings.

When a track roller frame member has been hooked on an obstacle and bent slightly it will cause track misalignment. If the idler cannot be adjusted to the proper alignment, frame members should be straightened or replaced before they cause serious damage to the other track parts.

Turning of pins and bushings can help reduce replacement costs. As pins and bushings wear, the track becomes longer and track adjustment is necessary. When the limit of track adjustment is reached, pins and bushings should be rotated 180 degrees. This will nearly double the service life of these parts.

The master pin and bushing should not be used as a guide to


METAL WORN AWAY FROM SIDE OF LINK
SECTION OF LINK-SUBJECT TO SIDE LOADING
TRACK ROLLERS RIDE ON ONE SIDE OF LINK ASSEMBLY
NOTE HOW SPROCKET CAN GOUGE THE SIDE OF A LINK

The track shoes of large push tractors often extend outside the cut of older, unmatched scrapers as illustrated by this drawing. To avoid damage to track and finals drives, narrow or inside offset shoes should be used that match the cut of the narrowest scraper on the job.

determine the wear on the other pins and bushings in the track chain, since wear at this point is more rapid. Adjacent pins and bushings, extending along the track on either side of the master pin for one-half the circumference of the sprocket, usually exhibit more wear than the remaining pins and bushings. Experience has shown that periodic replacement of the master pin reduces wear on the pins and bushings close to the master pin.

Never operate a tractor with bushings that are broken. This results in accelerated wear to all other track parts. Additionally, track with badly worn pins and bushings causes jumping of the track and rapid wear on the sprocket teeth.

All track rollers under a tractor do not wear at the same rate. It is a profitable practice to switch rollers in the same manner that tires are switched on automobiles. Changing the position of rollers distributes the wear and extends the service life of the roller group as a whole. It is best to change the position of rollers about midway in their normal expected service life. Sprockets and idlers can also be switched to equalize wear. This should also be done at the midpoint of their service life.

To determine the wear between links and rollers, check the clearance between the roller flange and the link pin boss. Dealers should be consulted for maximum wear limits so that rollers and links can be economically rebuilt.

Rebuilding Track Parts

The reconditioning of track and its related parts is a sound investment. When shoes, rails, idlers, rollers and sprockets are rebuilt before they have reached the stage where it is uneconomical to recondition them, these parts will give good performance.

In recent years, dealers have developed many new methods designed to cut costs and downtime. An interesting service is provided by a Kansas machinery dealer. Under a so-called "loaner" plan, track groups are loaned to a tractor owner while his track group is being rebuilt in the shop. According to the dealer, savings of up to 60 percent are possible when track is reconditioned instead of being replaced. The plan also cuts downtime from days to minutes.

A Minnesota equipment dealer offers firm quotes on buildup work. Roller, idler and track reconditioning is based on wear. Rollers, for example, are examined to determine the increment of wear. Worn rollers are then exchanged for rebuilt ones. This way the customer only pays for the reconditioning of his own rollers and cuts the time his machine is out of service.

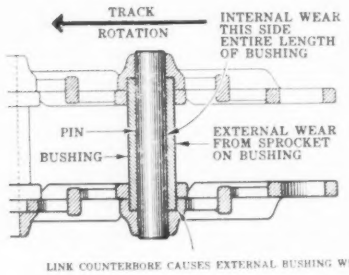
Sometimes, of course, parts cannot be economically rebuilt. Track rollers that show excessive wear or have enlarged or bellmouthed bores, distorted capscrew holes, loose rims, or broken flanges, can make rebuilding an unsound investment.* In such cases, a new part specified and built by the manufacturer should always be installed.

To insure quality workmanship roller shells should be well cleaned. The welding wire used should meet as close as possible original part specifications for hardness and impact resistance. Crawler tractor manufacturers have developed standardized recommendations for rebuilding track parts and instituted dealer training programs. This helps assure that reconditioning work meets original part specifications.

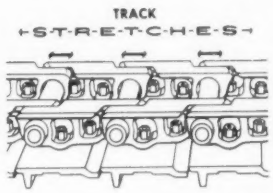
Conclusion

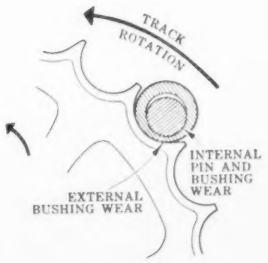
Track costs can be cut through aggressive productive maintenance. Does the tractor have the right track shoes and attachments for the job? Is it being operated properly? Is each member of the organization aware of his responsibilities for day-to-day maintenance? Is lubrication being carried out in accordance with Manufacturer's recommendations? Are sprockets, rollers and idlers being switched to equalize wear? Are pins and bushings being turned when the limits of track adjustment are reached? Are track and related parts being rebuilt at the most economical time? If the answer to all these questions is *yes*, the machine owner can be sure he's getting the track life he paid for.

Exact wear limits for economical reconditioning of track parts can be obtained by consulting the dealer.



LINK COUNTERBORE CAUSES EXTERNAL BUSHING WEAR





UPPER LEFT: Drawing of track section shows points of wear on pins and bushings.

UPPER RIGHT: As pins and bushings wear, track stretches. Tension should be checked daily and adjusted to proper tightness. When limits of adjustment are reached, pins and bushings should be turned.

LOWER RIGHT: External bushing wear occurs where contact is made with sprocket. Since wear takes place on only one side of pins and bushings, "turning" them (rotating 180 degrees) will double their life.

1959, experts say, will usher in the greatest period of construction in history. How will you do in this era of tremendous growth? The answer depends in large measure on your machines. Their performance determines your profit. Caterpillar's research and development program in this period will continue to provide the best possible earthmoving machinery.

CATERPILLAR'S PROJECT PAYDIRT

Project

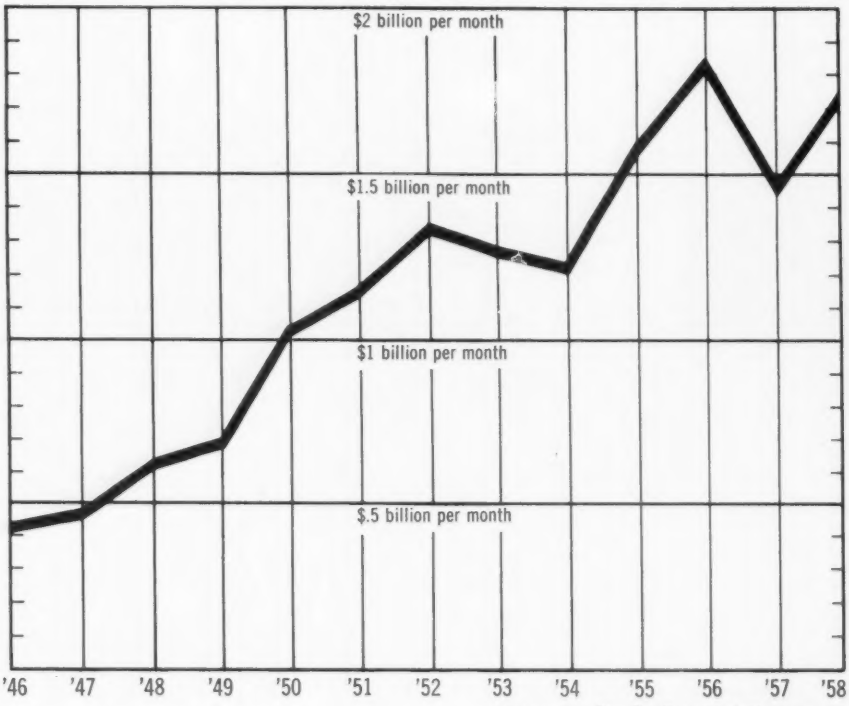
CATERPILLAR RESEARCH AND DEVELOPMENT

A multi-million-dollar research and development program at Caterpillar Tractor Co. is paying off for you in the most productive earthmoving equipment ever manufactured. It's PROJECT PAYDIRT—the big news in the construction field today.

Caterpillar research consistently has been first with the major developments in earthmoving equipment. Each development has meant more production and more profit for owners of Caterpillar machines.

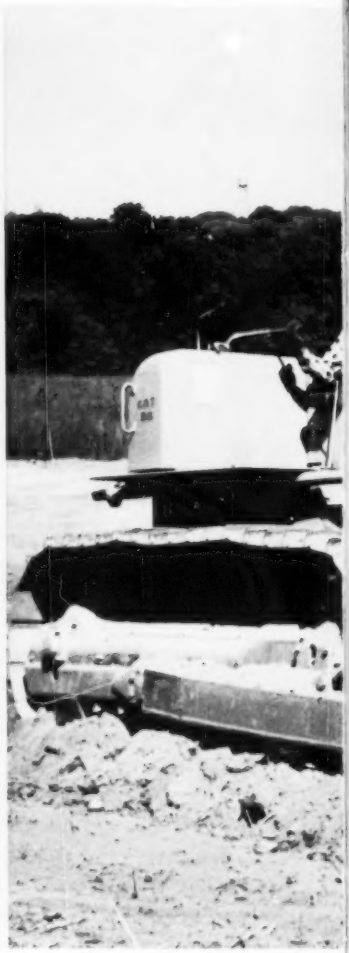
Since 1946 the money spent on heavy construction

GROWTH IN U. S. HEAVY ENGINEERING CONSTRUCTION



Source: *U. S. Dept. of Commerce*

SHARP INCREASE of money spent in U.S. on heavy engineering construction, both public and private, is shown in this graph. In 1946, a monthly average of $431 million in heavy engineering construction contracts was let. In the first eight months of 1958, contracts averaged nearly $2 billion ($1,717 million). By 1975, average monthly contracts of approximately $3.5 billion are expected.



HERE'S WHAT *PROJECT PAYDIRT* MEANS TO YOU!

As the amount of construction increases, more contractors will enter the field, and competition for the work will be intense. Machines may be the difference between profit and loss. There will be no place for anything but modern, heavy-duty machines—machines that can perform *profitably*, day in and day out, under severe conditions.

Caterpillar has these machines, a full line of quality, job-tested earthmoving equipment. And PROJECT PAYDIRT insures that the Caterpillar line will always be ready for the job ahead, regardless of changing conditions and demands. Proof of this lies in the past record.

Since the end of World War II the Caterpillar line has experienced a continuous growth. And in 1951 the DW20 and DW21 were introduced. These wheel-type tractors soon proved ideal power units for scrapers. Also from PROJECT PAYDIRT that year: the No. 90 Scraper, top producer with track-type tractors; and the HT4, a track-type, hydraulic front end loader.

The workhorse D8 Pusher, designed especially for push-loading applications, was introduced in 1953, along with

Paydirt

PACE GROWTH IN HEAVY CONSTRUCTION

in the United States has more than doubled. By 1975, experts predict, it will more than double again. Between now and then may well lie the country's greatest era of construction.

PROJECT PAYDIRT is Caterpillar's answer to the challenge of this explosive growth in heavy construction.

Money spent on heavy construction in U. S. has risen since 1946 from $5,172,000,000 to more than $20 billion. Experts predict that by 1975 annual expenditures will rise to more than $40 billion.

the No. 6 Shovel and the DW15, a smaller four-wheel tractor. 1955 brought the massive D9, king of the crawlers, equally effective as a bulldozer or for pushloading scrapers.

Also in 1955 came the three Traxcavators (Nos. 977, 955, 933), and the LOWBOWL Scrapers (Nos. 470, 456, 463), top producers that competitors still are trying to duplicate.

The Oil Clutch began setting new long-life standards in 1955. Also introduced in that year were other LOWBOWL Scrapers (Nos. 428, 435, 491), and tractor-mounted hydraulic Rippers (Nos. 4, 6, 8, 9).

In 1957, the Side Dump Bucket was offered as an attachment for the No. 955 Traxcavator, resulting in greater production through in-line loading. In the bulldozer line, the revolutionary Gyrodozer for the D7 Tractor began its career as the most versatile blade yet developed. PROJECT PAYDIRT was producing the equipment to match the growth in engineering construction.

The new Dry-Type Air Cleaner for the D9, DW20 and DW21 was introduced last month. This air cleaner removes 99.8% of all dirt in the intake air. And it requires only 5 minutes instead of the 20 formerly required to service the oil-type cleaner. That's 15 minutes more production time at each service period.

HEADQUARTERS FOR

CATERPILLAR'S PROJECT PAYDIRT

AND NOW

CATERPILLAR'S PROJECT PAYDIRT

BRINGS YOU...

LIFETIME LUBRICATED ROLLERS AND IDLERS

- **No routine servicing!**
- **Outwear conventional rollers and idlers!**
- **Feature new leakproof seals that can be re-used!**

Three million test hours under the toughest conditions prove this fact: new D9 lifetime lubricated rollers and idlers have no equals for low-cost, trouble-free performance.

Lubricated in the factory, they never need servicing again until they are rebuilt. They last far longer with less maintenance than conventional counterparts. Their new seals are leakproof and can be used again and again.

These outstanding advantages are the direct result of Caterpillar's new, exclusive concept in roller seal design—a metal to metal, floating ring seal.

Important as the new seal is, it is only one of many major improvements in the new D9 track roller. Major changes have also been made in rim, hub, bushing, outer sleeve bearing, roller shaft, end collars and lubrication system. These advances greatly extend roller life and effect substantial savings when rebuilding is necessary. See your Caterpillar Dealer today. He has the full story on what the new lifetime lubricated roller can mean to you.

BECKWITH MACHINERY COMPANY

6550 Hamilton Avenue PITTSBURGH	
Old Town Road CLEARFIELD	
361-369 Congress St. BRADFORD	PA.
1356 E. 12th St. ERIE	
Route 219 North SOMERSET	
Buckhannon Pike CLARKSBURG	W. VA.

OHIO MACHINERY CO.

6606 Schaaf Road CLEVELAND	
930 Kinnear Road COLUMBUS	
2807 Reynolds Road TOLEDO	OHIO
U. S. Route 250 CADIZ	
4000 Lake Park Road YOUNGSTOWN	

WALKER MACHINERY CO.

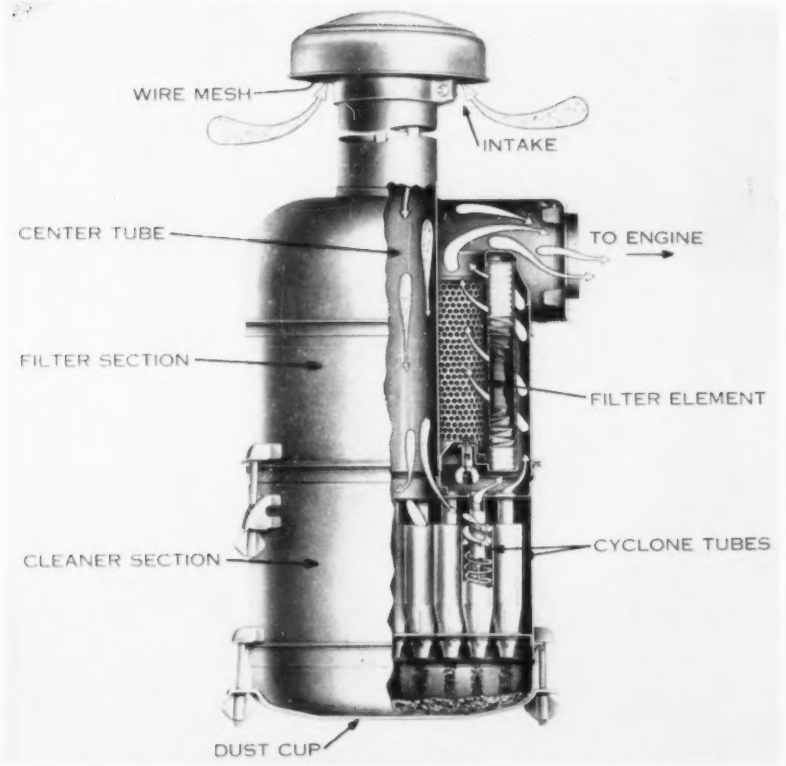
1545 Hansford Street CHARLESTON	
4010 Emerson Avenue Route #2 PARKERSBURG	W. VA.

CM-8V

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

DT-1749 Printed in U. S. A.



Cutaway airflow diagram of now dry type air cleaner developed for Caterpillar DW20 and DW21 Tractors. Air enters the stack cap, flows downward into the cyclonic precleaner, returns upward through the filter element and passes into the inlet manifold of the diesel engine. This new type air cleaner removes 99.8%

• A new dry type air cleaner of unparalled efficiency and simplicity has been developed for use on Cat DW20 and DW21 Tractors according to an announcement by Caterpillar Tractor Co.

Proven through extensive testing for many thousands of hours on such applications as land clearing, construction and logging, the cleaner removes 99.8 percent of all dirt from the diesels intake air. It is fully effective at any engine speed and is designed to speed servicing and reduce maintenance.

A disposable resin impregnated cellulose filter, multi-cyclone precleaner is made up of two aluminum spirals (similar to a spiral staircase) and a group of vertical, funnel shaped nylon tubes.

As the air enters the spirals it begins to swirl, setting up a centrifugal action. The dirt particles, being heavier than air, are forced to drop out of the nylon tubes into the collecting trays. About 95 percent of the dirt particles are removed at this point. Air then travels upward through small aluminum tubes set inside the nylon funnel sections to the resin impregnated cellulose filter element. The element removes the remainder of the dirt and the clean air is directed into the intake manifold of the diesel engine.

The dry type air cleaner is designed to greatly reduce maintenance costs. Since the time needed to service the unit is reduced, machine availability is increased. Moreover, the cost of replacement elements is considerably less than the cumulative cost of oil and man hours necessary for servicing oil bath types.

Under most conditions the collection cup requires servicing once each day. This simply consists of removing the cup and emptying out the accumulated dirt. The dry type element is usually removed and cleaned at engine oil change periods. The element may be cleaned up to six times before it must be discarded. Cleaning is accomplished by using either a reverse flow of water or compressed air. The element can be checked for effectiveness by holding a lighted bulb in the center hole. If light shows through, the element is defective and should be replaced.

The new units also eliminate the danger of engine damage resulting from infrequent servicing. When the paper element becomes plugged, the engine will lose power and begin to smoke. This visual warning acts as an automatic reminder that the cleaner must be serviced, and offers positive protection against carryover of dirt into the engine. As a safety feature, the multicyclone precleaner causes moisture or sparks to be directed to the dust collection cup.

Self-Adhering Westline Reflective Utility Markers

For positive identification in mines and mining areas, Westline Products offers this new line of Reflective Utility Markers that are available in Numerals and Letters.

Reflective Markers stand out bold and bright. Markers are 100 times more reflective than white or yellow stencilled paint. Available in letters or numbers to instantly make up warning — instruction — safety — directional or special wordings in seconds. Day or night, "Westlite" Utility Markers reflect at a distance.

For free sample and location of local source write Westline Products Division of Western Lithograph Company, 666 East 2nd St., Los Angeles 54, California.

Annual Meeting Independent Mineral Producers Association

Bill Harger, Pres. of the Assn. addressing the banquet.

Left: Robert Bailey, Bailey Coal Co., and Lee Reynolds, Highway Equipment Co.

Al Dalessio, Purchasing Agent for Highway Equipment Co., left, and Elmer Snyder, of the Snyder Coal Co.

L. S. Hartley, Mgr. Agricultural Development Div., B. & O. Railroad was the speaker of the evening.

Left: Keith Stewart, Bucyrus-Erie Co., James Beckwith, Beckwith Machinery Co., Dave Scudder, Bucyrus-Erie Co., R. S. Walker, Pres. Bradford Coal Co.

Why such meetings as the Independent Mineral Producers Association? Well, man discovered very early in his existence the need to consolidate and subdivide. Man learned that what one could not do alone several, together, could do. Man discovered early too, that pooling skills and abilities would produce more and by anticipating his needs he provides more in advance. Thus man discovered management.

Primitive man soon saw, also, that his new tools and methods would be productive only if the whole program was intelligently planned and directed. Functions of management were later subdivided into trades and crafts which served commerce of the day.

Man's cultural growth has always paralleled, step by step, his advance in commerce. Material abundance, brought about by greater use of tools, permitted extension of humane behavior into areas before unknown.

In America, man is achieving a degree of technical prowess unprecedented in all his history: In America, technological progress

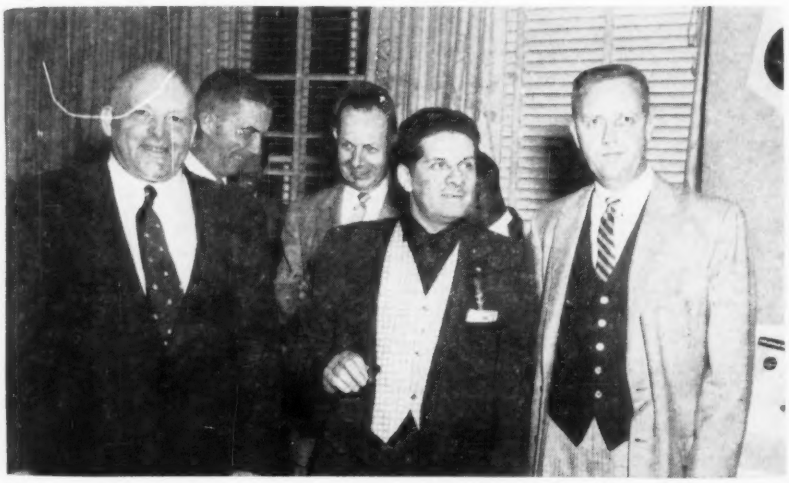
Left: G. B. Maximon, Pres., Maximon Machine Co., Paul Turner, Turner Bros. Coal Co., Wayne Wible, Maximon Machine Co., Alec Watson, Watson Equipment Co., C. T. Lytle, Maximon Machine Co., and Ray Turner, Cliff Turner, Turner Bros. Coal Co.

Left: W. T. Redman, Beckwith Machinery Co., S. D. Winger, Buckeye Coal Co., B. H. Lingle, Lingle Coal Co., L. E. Samuelson, Beckwith Machinery Co., L. H. Hohnka, Central Penna. Open Pit Mining Assn.

Left: M. E. Schoffner, Schoffner Coal Co., J. R. Cravener, Cravener Coal Co., T. H. Bentzel, Beckwith Machinery Co., H.E. Bowser, Bowser Coal Co., R. L. Watt, Ringold Coal Co., L. B. Swab, R. J. McLaine and H. W. Trowen Genuine Motor Parts Co.

Left: Bruce H. Dunsmore, Prof. Biology, Clarion State Teachers College, Nathan A. Crawford, Atty. for the Assn., Roy Cunningham, Deputy of Mines, Penna., Frank H. Mohnet, Secretary of the Assn.

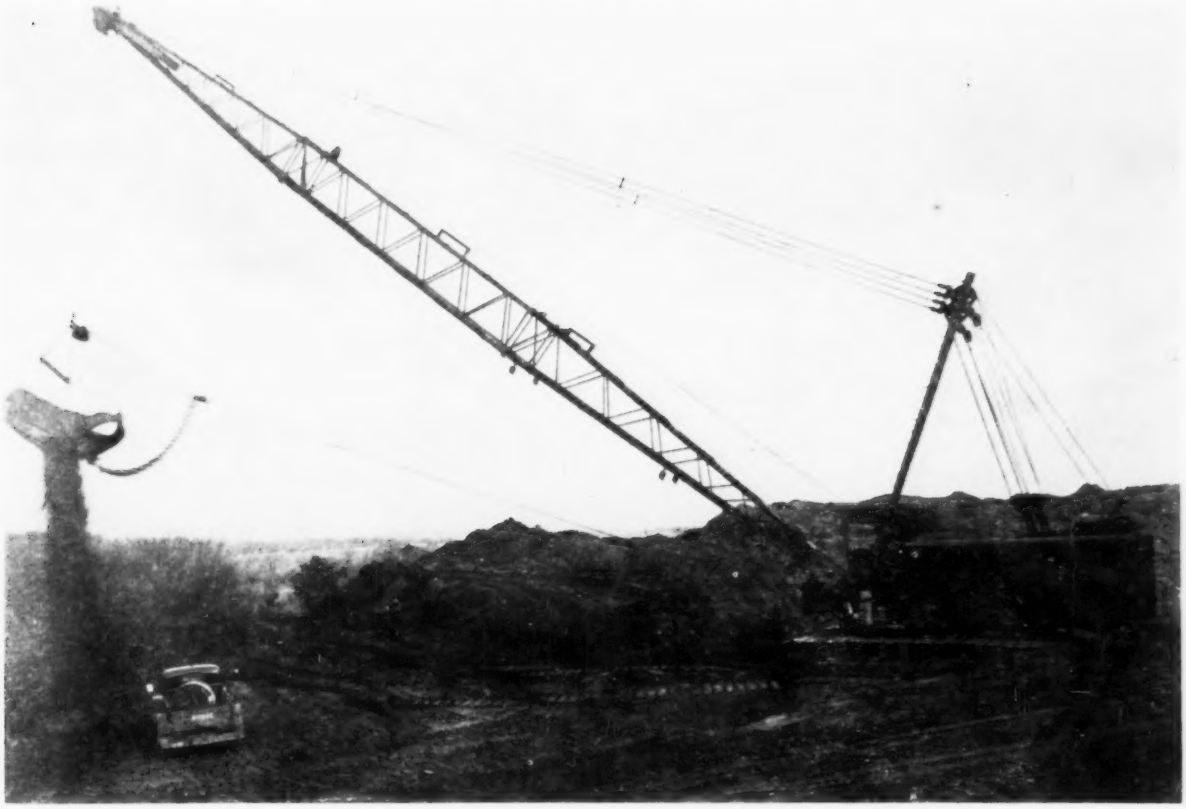
Left: Frank Copriva, Jr., Copriva Coal Co., L. L. Seitz, Baldwin-Lima Corp., J. V. Granny and H. Elmer Whitmyer of Whitmyer Equipment Co., W. M. Humme, North Wewickley Coal Co., E. E. Worrell, Baldwin-Lima Corp.



Left: Amos Dolly, Explosives Eng., I. Wood, Wood Coal Co., Nelson Davage, Beckwith Machinery Co.

has compressed the time table of human advance, accelerated the rise of living standard and brought people in all walks of life opportunities and conveniences enjoyed only by the wealthiest in the past. With confidence in his political freedom, with abundant natural resources and unlimited enthusiasm, the American is combining science and technology, is organizing and consolidating, thus creating a newer kind of industrial revolution.

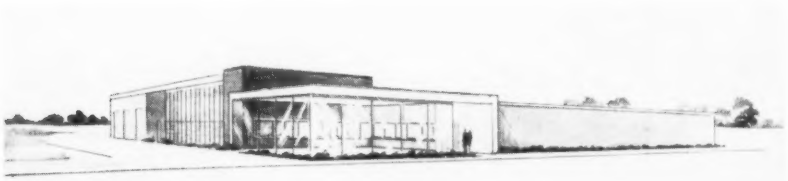
The principal benefactor of the American industrial revolution has been the workman who has emerged from comparative poverty to abundance and leisure. American technology has done what man has never been able to do before. Technology, coupled with the doctrine of freedom is bringing about still more cultural and social progress. Technological mechanisms are bringing an end to human privations and servitude all over the world and are making the benefits of civilization available to all. Thus individuals, acting **in groups** like the Independent Mineral Producers Association are doing their part in this great human progress.



Moving Overburden At The A. B. C. Coal Company Near Lisbon, Ohio

The greatest portion of the coal bearing strata of Northeastern Ohio is topped by the Ohio No. 6 Seam. Overburden on that seam generally consists of up to 12 feet of loam and soft brown shale, then gray shale that hardens as it deepens. The average high in cover moved will run 40 feet. The seam runs a steady 32 inches in thickness and contains a grade of coal that is desirable for the local market. The good market supports many coal stripping operations.

One operation, near Lisbon is that of the ABC Coal Company which is moving overburden with a Manitowoc Model 4500 dragline and Allis-Chalmers H-D-21 tractor.



Reading left to right: Tim Harrington, Caterpillar Tractor Co., Cecil Walker, Pres., Walker Machinery Co., H. B. Agsten, Jr., General Contractor, R. C. Price, Jr. and S. Kalip, Architects, breaking ground on new building site for Walker Machinery Co.

Reading left to right: S. McKalip and R. C. Price, Jr., architects, H. B. Agsten, Jr., General Contractor, Cecil Walker, Pres., Walker Machinery Co., Tim Harrington, Caterpillar Tractor Co. inspecting grade made by Caterpillar No. 12 Motor Grader in background, on new building site of Walker Machinery Co.

Walker Machinery Co. Breaks Ground For New Building Site

Ground-breaking ceremonies were held recently at their 12-acre site, located in the east and Belle, West Virginia, on Route 60.

The new building will be of masonry and steel construction and will have complete facilities for office sales, parts and service in 35,000 sq. ft. of floor space. The latest and most modern rebuilding equipment will be installed, in order to speed up the many services available to their customers. Completion date for the new facilities will be on, or about, September 1, 1959.

Walker Machinery Co. is now located at 1545 Hansford Street, Charleston, West Virginia. They are dealers for Caterpillar Tractor Co., The Thew Shovel Co., Jaeger Machine Co., and Bros, Inc. products; and, therefore, offer a complete line of earthmoving and construction equipment. They serve the central and western portions of West Virginia, as well as the southeastern portion of Ohio.

The Parkersburg branch of Walker Machinery Co. is located on a 4-acre site on Route 2 just north of Parkersburg. This branch is also in process of being enlarged, in order to take care of the ever-increasing needs of their customers in that area.

At Perry-Ross Coal Co., Harlansburg, Allis-Chalmers HD-21s strip, fill and build access roads. No job is too tough!

When you talk to mining men responsible for producing more coal faster at less cost . . . they'll tell you it pays to rely on

AA-8663

ALLIS-CHALMERS

equipment . . . sold, serviced, guaranteed by

Highway!

Ability to push bigger loads is outstanding Allis-Chalmers HD-21 feature.

Highway

HIGHWAY EQUIPMENT COMPANY
6465 Hamilton Ave. • Pittsburgh 6, Pa.
40 Hoover Ave. • Du Bois, Pa.

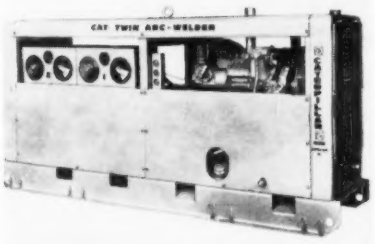
● A new, portable Twin Arc-Welder has been announced by Engine Division, Caterpillar Tractor Co. The welder, equipped with either skid or running gear, uses the Cat D311 (Series H) Diesel Engine and two Lincoln Electric Welding Generators.

The generators each have a rating (NEMA) of 300 amps at 40 volts for simultaneous operation of two arcs. For parallel operation the Twin Arc-Welder is rated at 600 amps, 40 volts. The current range of each generator is 60 to 375 amperes.

Two sets of generator controls allow welding at different voltages, amperages and polarity at the same time to permit precision adjustment for any type or size arc throughout the current range.

A 3 KW capacity exciter provides a constant source of magnetic flux to the generators and 1.5 KW or more of power to two 115-volt DC auxiliary equipment outlets.

Adequate engine reserve capacity assures a constant arc without fluctuation due to normal load variations. The engine is a Cat D311 (Series H), four-cycle, four-cylinder, valve-in-head precombustion chamber diesel.



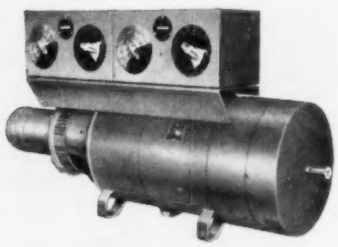
Powered by the Cat D311 (Series H) Diesel Engine, the new Cat Twin Arc-Welder features two sets of generator controls, allowing welding at different voltages, amperages and polarity at the same time.

The standard Twin Arc-Welder includes 24-volt electric starting complete with charging generator and batteries, instrument panel and base-type fuel tank. Welding cables are not included since most owners already have them. Other than the cables, fuel and water, the welder is ready to start working upon delivery.

Heavy-duty, four-wheeled running gear with springs and mechanical parking brake is available. This unit is 66.1 inches high with a 90.8 inch wheel base and a 60-inch gage.

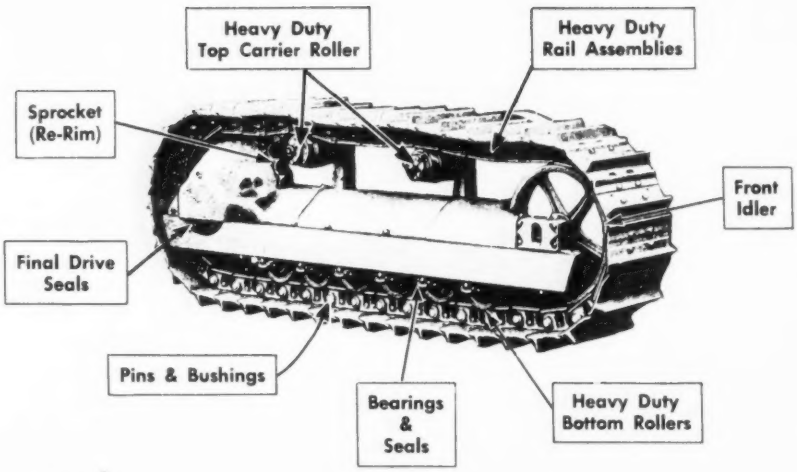
The standard unit with skid base is 116 inches long, 31.2 inches wide and 51 inches high. Two units (power for four welders) are easily mounted on one truck. Approximate weight of the standard machine is 4,035 pounds.

The D311 (Series H) Twin Arc-Welder replaces the D315 Twin Arc-Welder in the Caterpillar line



Two Lincoln Electric Co. 300 amp generators supply current for simultaneous operation of two arcs. Two independent control panels permit welding with different amperages, voltages and polarity at the same time.

Quality Replacement Parts in stock for "Cat," "AC," "IHC"



and

In a most modern and well equipped Rebuilding Shop

REBUILD TO STANDARD

Track & Grousers — Front Idlers
Bottom Rollers — Sprockets (Re-Rim)

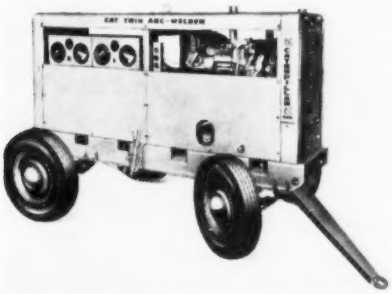
OUR 37TH YEAR

MAXIMON MACHINE CO., INC.

801 N. LOGAN BLVD.
Altoona, Pa.
Windsor 31156

●

HARRISVILLE RD. (Rt. 58)
Grove City, Pa.
Phone 1422



Maximum portability of the Cat D311 (Series H) Twin Arc-Welder is obtained by mounting on heavy-duty, four-wheeled running gear with springs and mechanical brake.

providing the same output with smaller dimensions and lower cost. For additional information and specifications see your nearby Caterpillar dealer or contact Engine Division, Caterpillar Tractor Co., Peoria, Illinois.

● A new low cost, one-coat rust-resistant paint, recommended for mine applications, is announced by Speco, Inc., Cleveland.

Available under the trade name "RUSTREM" (rust-remedy), it is said to be suitable for use on all types of mine machinery, indoors or out; metal buildings, roofs, ventilators, drains and steelwork.

Outstanding RUSTREM feature is its extreme ease of application. According to the manufacturer, it requires no prime coating and can be either sprayed or brushed on, after minimum surface preparation. RUSTREM is said to eliminate much of the wire-brushing, scraping and sandblasting needed for successful application of most anti-rust coatings. RUSTREM is also claimed to penetrate rust layers and adhere firmly to the base surface, forming a tight seal which will resist moisture, temperature changes, chemicals, mild acids and fumes.

Because of this penetrating ability, it can be applied effectiveiy over damp surfaces, during light rainfalls or in locations where moisture is always present. The paint's solvents do not thicken appreciably in cold weather. RUSTREM can be used for emergency winter painting.

RUSTREM is available in 1- and 5-gallon cans and 55-gallon drums in clear and 8 standard colors. These are black, super aluminum with clear base, aluminum with black base, oxide red, oxide green, chrome green, gray and white. Other colors are available on special order. The manufacturer advises that it can exactly match any equipment color.

For complete RUSTREM data, write *Speco, Inc., 7308 Associate Ave., Cleveland 9, Ohio.* Ask for Bulletin RAR-1.

Fast, flexible operation is aided by the drill arm swing of 10° 9½" right and left of center, reducing truck maneuvering.

for full time roof bolting, the 56-RDR Drilling Machine
(PATENTED)

Big, sturdy, easy to maneuver and fast drilling . . . the Jeffrey 56-RDR Drilling Machine is designed for the continuous operation demanded in busy mines.

Check these features: the Jeffrey 56-RDR Drilling Machine can bolt a wide room from one position. Drill boom controls are centralized and within convenient reach of the operator. Its size and stability enable the unit to carry generous quantities of roof bolting materials and drill supplies. The Jeffrey cable reel reduces wear on cable, holding down maintenance costs.

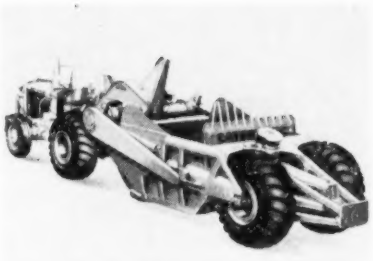
Bulletin 831-A describing Jeffrey Drills and Drilling Machines will be sent to you free. The Jeffrey Manufacturing Company, Columbus 16, Ohio.

JEFFREY

MINING • PROCESSING • CONVEYING EQUIPMENT
TRANSMISSION MACHINERY • CONTRACT MANUFACTURING

● Two scrapers are now available for service with the Caterpillar DW20 wheel Tractor, according to a current announcement by Caterpillar Tractor Co. This has been brought about by the addition to the company line of a 24 yard struck-capacity scraper, designated the Cat No. 482 Series B Scraper. This new unit joins the 18 yard No. 456 Scraper to give machine users a choice of scraper sizes to work with the DW20.

The two scrapers have different capacities. Job conditions will determine which unit will best serve to return maximum profit on individual earthmoving projects. In general, the big new No. 482 finds the most economical application in good conditions, where haul road grades are at a minimum, and rolling resistance is low. The No. 456 Scraper can best serve on jobs where adverse grades and average to high resistance haul road conditions are encountered. In outlining these general application rules, the company indicated that these factors, and others,, should be considered in determining the scraper most applicable on individual jobs.



Designed especially for increased production in applications where favorable earthmoving conditions are encountered, the new Caterpillar No. 482 Series B Scraper, for use with the DW20 wheel Tractor, has a struck capacity of 24 cu. yds. — an increase of 6 cu. yds. over the 456 Scraper also used with this tractor.

The newly-introduced No. 482 incorporates a number of features designed to insure long service life of scraper components. Paramount among these is the location of the bowl lift sheaves in the draft frame spreader tube. The bowl lift cables are attached directly to the bowl sides — a change made advisable by the large capacity of the scraper. This innovation gives maximum protection from dust and fouling of the bowl lift sheaves and cables, providing optimum sheave and cable life.

Another service feature has been provided on the new scraper, in the form of sealed sheave bearings which are used throughout. These bearings have a 125-hour lubrication period.

Additionally, the cable saver on the No. 482 has been designed with a large capacity master cylinder and long slave cylinder stroke. Because of this feature, frequent adjustment of the slave cylinder stroke to compensate for cable control unit wear will not be necessary.

A safety feature of the No. 482 Series B is the inclusion of an automatic bowl latch as standard equipment. The bowl latch operates to preclude accidental dropping of the bowl due to cable breakage.

SCOTTDALE MACHINE, FOUNDRY & CONSTRUCTION CO.

DEPT. CM BOX 51 SCOTTDALE, PA.

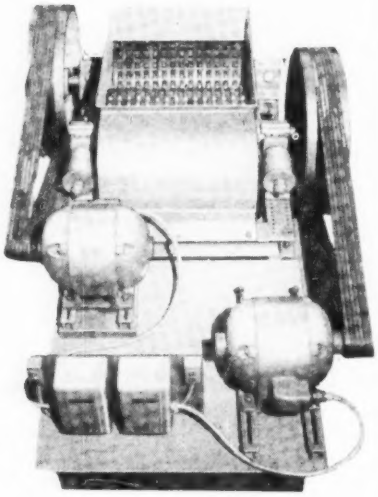
DOUBLE ROLL

COAL CRUSHER

EFFICIENT . . . produces a more uniform product!

ECONOMICAL . . . uses less power!

BOOSTS . . . sales— profits!



NO. 63 SPECIAL — 2 Motor Drive — Produces a Product ¾" to 8". Equipped with Two Grooved Flywheels. (No Gears)

Efficient and practical the shredding action of the crushers' tooth studded double rolls turns out a more consistent product. Quality produced forged steel tooth gears, welded steel base, bronze bushed journal bearings, welded steel hopper and grooved flywheels.

GOOD MINING EQUIPMENT - - - - - - - - - IS A GOOD INVESTMENT

There is No Magic in the Used Equipment Business—you get only what you pay for.

No Price is Low — If Quality is Gone

The items listed below are exactly as represented WE ORIGINATE OTHERS IMITATE

JOY EQUIPMENT—REBUILT

3—Joy 14BU Loader, low pedestal, 7AE.
2—Joy 14BU Loaders, medium pedestal, 7RBE.
1—Joy 14BU Loader, high pedestal, 7BE.
2—Joy 12BU Loaders, 9E, latest type.
1—Joy 12BU Loaders, 220 volt AC.
1—Joy 20BU Loader, latest type.
1—Joy 11BU Loader, latest type.
2—Joy 8BU Loaders, 250 volt DC.
1—Joy 8BU Loaders, 34" overall height.
2—Joy 8BU Loaders, 220 volt AC.
1—Joy curved Bar Head, complete.
4—Reliance 38-J Motors.
6—Reliance 24-J Motors, 7½ H.P.
4—Reliance 10-J Motors, 5 H.P.
3—Reliance 15-J Motors, 7½ H.P.
20—9-J Motors, 4 H.P.
6—New Wheel Units for Joy 6SC Shuttle Cars.
1—Goodman 660 Loader on cats, excellent.
1—Goodman 665 Loader on cats, latest type.
1—Goodman 865 Loader, 26" high.
2—Joy 8SC Shuttle Cars, rebuilt.
2—Joy 6SC Shuttle Cars, rebuilt.
2—Joy 5SC Shuttle Cars, rebuilt.
2—Joy 32E9 Shuttle Cars.
2—Joy 32E10 Shuttle Cars, rebuilt.
2—Joy 32E15 Shuttle Cars, rebuilt.
1—Joy 32-16 Shuttle Car, rebuilt.
2—Joy 42E16 Shuttle Cars, rebuilt.
3—Joy CD-22 Drills, like new.
4—Joy T-2-5 low pan Cat Trucks.
1—Joy T-2-6 low pan Cat Truck with reel.
2—Joy T-1 Standard Cat Trucks, 220 AC.
1—Joy T-1 Standard Cat Trucks with reel.
2—Joy 11-B Cutting Machines, like new.
2—Goodman 212 Cutting Machines, 19" high.
1—Joy 7-B Cutting Machine, like new, 250 volt DC.
4—Goodman 312 Cutting Machines, 17" high.
3—Goodman 412 Cutting Machines, 19" high.
2—Joy 7-B Cutting Machines, 220/440 volt AC.
1—Goodman Machine on Cars, 31" high. All hydraulic.
6—Goodman 512 Machines with Bugdusters.
1—Goodman 512 Cutting Machines, perfect.
4—Goodman 512 Cutting Machines, 220/400 volt AC.
3—Goodman 112 Cutting Machines, 220/440 volt AC.
1—Lee Norse low vein Machine Carrier on rubber.
1—Jeffrey 70 URB rubber tired Cutter. Universal head, perfect condition.
1— Joy 10RU Rubber Tired Cutter, first class.
1—Joy 11RU Rubbber Tired Cutter, with bug-duster, Universal head, like new.
1—Sullivan 7AU on rubber.
2—Jeffrey 29UC Cutting Machines, Universal head, cuts anywhere in seam, 38" high, on cats, 250 volt DC.

LOCOMOTIVES

1—Goodman 6 ton, 91-A, 27" high, armor plate frame
2—Jeffrey, 13 ton, type MH-110, 36" 42" and 44" Ga.
2—Jeffrey, 10 ton, type MH-110, 42" and 44" Ga.
1—Jeffrey MH-124, 6 ton, 24" overall height.
12—Jeffrey, 6 ton, type MH-88, 42", 44" and 48" Ga.
2—Jeffrey, 8 ton, type MH-100, 2" armor plate frames.
1—Jeffrey, 6 ton, type 2186, 22" above rail.
3—Jeffrey, 4 ton, type MH-96, 42" 44" and 48" Ga.
1—G.E., 4 ton, type 825 Locomotive, 22" high.
10—G.E., 6 ton, types 801, 803 821 Locomotives, 42", 44" and 48" Ga.
1—G.E. 8 ton, type 822 Locomotive, 44" Ga.
3—G.E. 10 ton, type 809 Locomotive, 42", 44" 48" Ga.
2—Goodman, type 33, 6 ton, 44" and 48" Ga.
3—Goodman, 8 ton, type 32A, 36", 44" and 48" Ga.
3—Westinghouse, type 902, 4 ton, 42" and 48" Ga.
2—Westinghouse, type 904, 6 ton, 44" and 48" Ga.
2—Westinghouse, type 906, 44" and 48" Ga.
2—Westinghouse, type 907, 10 ton, 44" and 48" Ga.
8—Jeffrey MH-78 Locomotive Units, cheap.
3—Plymouth Diesel Locomotives, 8 and 10 tons, 42" and 44" Ga.
4—Jeffrey MH-88 Locomotive Units, real bargains.
6—Jeffrey MH-100 Locomotive Units, reasonable.
Locomotive Trucks and Spare Armatures for all the above.

TIPPLE EQUIPMENT

1—Cedar Rapids portable super Screening Plant.
1—Complete 5 track tipple with washer.
1—Allis Chalmers 5' x 14' Rippflo Vibrator.
1—5' x 14' Robins double deck Vibrator.
1—4' x 10' Robins Cyrex Vibrator.
1—Roberts & Schaeger tandem Hydro-Separator. Belt Loading Booms.
1—Robins Car Shakeout
10—Crushers, various sizes.
Feeders, Drag Conveyors and Loading Booms.

CUTTING MACHINES

1—Joy 11RU, rubber tired, Cutter.
1—Joy 10RU, rubber tired, Cutter.
1—Jeffrey 70 URB Cutter, rubber tired, Universal Head, low vein.
2—Jeffrey 29UC Universal Machines on Cats.
1—7AU Sullivan on rubber.
1—Goodman on cats, 31" overall height.
3—Baby Goodman 212's, rebuilt, 250 volt DC.
2—Goodman 212 Cutting Machines, 19" high.
3—Goodman 412 Cutting Machines, 19" high.
4—Goodman 312's, 17" high.
4—Goodman 312' Cutting Machines, 17" high.
6—Goodman 512's with Bugdusters, like new.
4—Goodman 512's, rebuilt, or as removed from service.
4—Goodman 512's, 220/440 volt AC.
3—Goodman 112's 220/440 volt AC.
2—Joy 7-B Cutting Machines, 220/440 volt AC
2—Joy 11-B Cutting Machines, rebuilt.
6—Goodman 12AA's and 112AA's, 250 volt DC.
2—Goodman 324 Slabbers.
2—Goodman 724 Slabbers.
6—Jeffrey 35L's, like new, 17" high.
2—Jeffrey 35L's on low vein trucks.
15—Jeffrey 35B's and 35BB's.
2—Jeffrey 29B's on track.
2—Jeffrey 29C's, track mounted.
2—Jeffrey 29L's on track, perfect.
3—Sullivan CE7, 220 volt AC.
2—Clarkson oaders, 26" above rail.

LOADING MACHINES

2—Joy 30" Underground Belt Conveyors, 500' to
16—Joy Loaders, all types.
1—Goodman 865 Loader, 26", on cats.
1—Goodman 665 Loader, on cats.
1—Goodman 660 Loader, on cats.
1—Goodman 460, rebuilt.
2—Jeffrey 61 C18's, on rubber, 26".
3—Jeffrey L-500 Loaders.
2—Myers Whaley No. 3 Automatic Loaders.
2—Clarkson Loaders, 26" above rail.

CONVEYORS

2—Joy 30" Underground Belt Conveyors, 500' to 2000' each. Excellent.
2—Goodman 97-C, 30" Conveyors, 1500' long.
1—Barber-Greene 30" Belt Conveyor, 350', Excellent.
1—Robin 30" Belt Conveyor, 500'.
1—Jeffrey 52-B, 26" Conveyor, 1200' each.
1—Jeffrey 52-B, 30" Drive and Tail Assembly, complete.
3—Robins 26" tandem drive Belt Conveyors, 1000' to 2000' long. Excellent condition.
2—Joy MTB 30" Drive and Tail Assembly, complete.
3—Goodman 97 HC 30" Drive and Tail Assemblies, complete.
8,000' Conveyor Belt, 30".
10,000 Conveyor Belt, 26", like new.
2—61EW Elevating Conveyors.
2—61WH 15" Room Conveyors, 300'.
2—Joy 15" Room Conveyors, 300'.

Conveyors (Cont.)

2—Joy 20" Conveyors, 300'.
4—Joy Ladel UN-17 Shakers.
10—Goodman G-12½ and G-15 Shakers.

CONVERTERS AND DIESEL PLANTS

2—100KW, G.E. TCC-6's, 275 volt, Rotary Converters
1—150KW, G.E. HCC-6, 275 volt, Rotary Converter.
1—150KW, 6 phase, Allis Chalmers Rotary Converter, 275 volt DC.
1—200KW Allis Chalmers Rotary Converter, 6 phase, 275 DC, perfect.
1—200 KW, G.E. HCC-6 Rotary Converter, 275 volt DC.
1—300KW, G. E. HCC-6 Rotary Converter, 275
2—300KW Westinghouse, 6 phase, Rotary Converters, 275 volt DC.
2—500KW Westinghouse Rotary Converters. 275 volt DC.
2—200KW Westinghouse Rotary Converters, 275 DC.
(all the above with 6900/13000 and/or 2300/4000 primary transformers)
2—150KW MG Set, Westinghouse, rebuilt.
1—200 KW MG Set, Westinghouse, rebuilt.
1—200KW MG Set, General Electric, perfect.
2—150KW Allis Chalmers MG Sets, 275 DC volt, excellent 220-440 AC volt.
1—300KW Westinghouse, 600 volt MG Set, rebuilt.
2—300 KW Westinghouse, 600 volt, 6 phase, Rotary Converters.
2—500KW Westinghouse, 600 volt, DC, 6 phase, Rotary Converters.
2—500KW HCC-6 Rotary Converters, 6 Phase, 600 volt DC.
1—Cummins 125 KW, Diesel with 250 volt DC Generator.
1—Allis Chalmers Natural Gas Engine with 100KW Generator, 275 volt DC.
1—700 H.P. Shaft Hoist, complete.
Complete steam plant will sell all or any part.
Boilers, like new, 1100 H.P. and 500 H.P. Also transformers, turbines, etc.
1—Complete Tipple with Cleaning Plant.

MISCELLANEOUS

2—All Steel Armco Building, various sizes.
20—Jeffrey Molveyors on rubber tires.
1—¾ Yard Shovel and Back-Hoe.
1—¾ Yard Crane on Cats.
Battery Supply Tractors, rubber tired.
1—Cantrell Air Compressor on rubber tires.
10—Air Compressors, 1 H.P. to 40 H.P.
2—Joy self propelled rubber tired compressors, 240 cu. ft.
2—Acme self propelled rubber tired compressors, 130 cu. ft.
40 Mine Pumps, all types.
1—Differential 40 Passenger Man Trip Car.
6—MSA Rock Dusters.
2—Phillips, Carriers, 44" and 48" Ga.
2—Barber Greene self-propelled Bucket Elevators.
Pipe, Plastic, Steel, Transit, all sizes 1" to 6".
100 Mine Cars, drop bottom, 42" Ga.
80 Mine Cars, drop bottom, 44" Ga. ¾
100 Mine Cars, 18" high, end dump, 44" Ga.
300 Mine Cars, end dump and drop bottom, 20" high, 48" Ga.
1—10 ton Mine Car Scale with Recorder.
15—Brown Fayto HKL and HG Car Spotters.
1—12 ton Differential Slate Larry.
Incline Hoists, 25 to 50 H.P.
1—Jeffrey 5' Aerodyne Fan, like new.
1—Jeffrey 6' Aerodyne Fan.
1—Jeffrey 8' Aerodyne Fan.
2—Storage Tank, 4,000 Gallons.
1—Storage Tank, 10,000 Gallons.
10,000 Five Gallon G. I. Cans, screw lids.
800 tons Relaying Rail 25# to 80#.
10 tons Copper Trolley and Feeder.
300 Transformers from 1 to 2,000 KVA, 110 to 13,000 primary volts.
400 Electric Motors, 3 to 250 H.P.
Huge stock of mine supplies.
Thousands of Other Items.
600—MSA Mine Lamps, Chargers, etc.
1— Fricke Saw Mill—Complete.

WE OWN WHAT WE ADVERTISE **WE BUY—SELL—TRADE**

PHONE 2825 **J. T. FISH** **LOGAN, W. VA.**

NOW...Another source for speedy

BECKWITH-CATERPILLAR*

SERVICE

Another location—Somerset—has been added to the network of Beckwith Machinery Company headquarters—to better serve Cat equipment users in the vicinity of Bedford, Blair, Somerset and Cambria counties of Pennsylvania. The new center, equipped to handle any repair job, will also service the Maryland counties of Garrett and Allegany, as well as Mineral and Grant in West Virginia.

Somerset will dispatch speedy, skillful service to your job site or handle major repair work in the new shop located on Rt. 219 North of Somerset proper. Genuine Caterpillar parts by the thousands will be stocked to meet the needs of Cat owners in this three-state area.

Call Somerset 6533 for any construction equipment service need or for the latest information on profit-producing Caterpillar earthmoving equipment. Better still, stop by to inspect our latest facilities and to become acquainted.

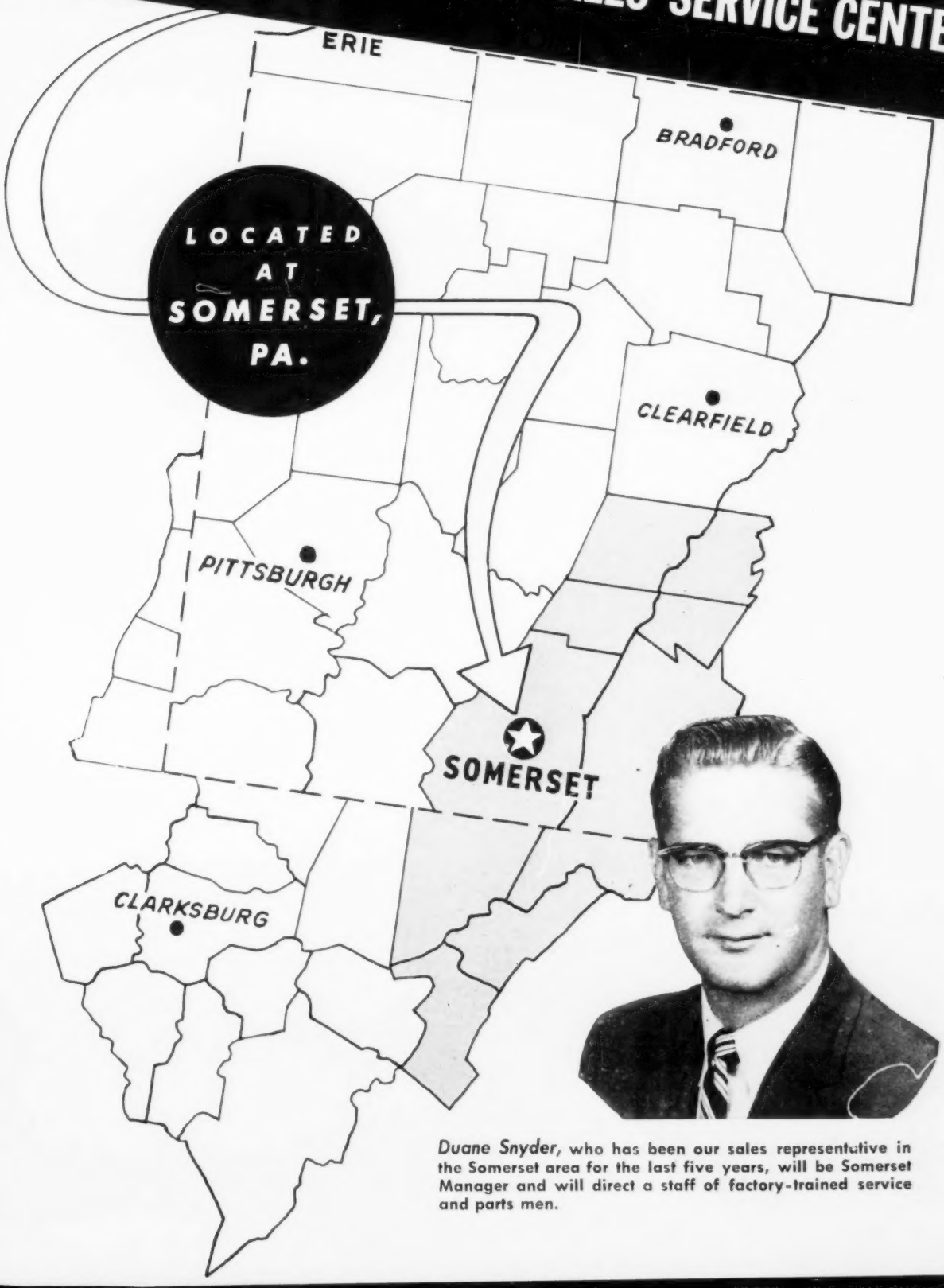
*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

BECKWITH
MACHINERY CO.

BRADFORD, PA. • 361-369 Congress St. • Phone 3166
CLEARFIELD, PA. • Old Town Rd. • Phone 5-9635
ERIE, PA. • 1356 E. 12th St. • Phone 4-2494
SOMERSET, PA. • Rt. 219 N. • Phone Somerset 6533
CLARKSBURG, W.VA. • U.S. Rt. 20 • Phone Main 4-5476

6550 Hamilton Avenue • PITTSBURGH • Phone: MOntrose 1-6900

A NEW CATERPILLAR PARTS·SALES·SERVICE CENTER



Duane Snyder, who has been our sales representative in the Somerset area for the last five years, will be Somerset Manager and will direct a staff of factory-trained service and parts men.

JEFFREY

MATERIAL HANDLING AND PROCESSING EQUIPMENT

POWER TRANSMISSION MACHINERY

CRUSHERS PULVERIZERS

CONVEYORS

CHAINS AND SPROCKETS

ELEVATORS

NORTHEASTERN INCORPORATED

321 Cherry Avenue N. E.
GL 6-7333 Canton, Ohio

75 Maysville Avenue
GL 2-3602 Zanesville, Ohio

FOR SALE

Alis Chalmers HD-20 Tractor with Torque converter. 1954 — Good condition.

ANDERSON EQUIPMENT CO.
P. O. Box 427 Bridgeville, Pa.
Phone Lehigh 1-6020

FOR SALE

BULLDOZER—Allis Chalmers HD-20 with Baker Blade. A good running '54 unit attractively priced.

ANDERSON EQUIPMENT CO.
Box 427, Bridgeville, Pa.
(Pittsburgh area)
Phone LEhigh 1-6020

FOR SALE

By Original Owner
Good Clean 1201 Limal Shovel
Located Ohio
Will Load on Trucks or Rail
Address: Box 34
(Care of Coal Mining Magazine)

FOR SALE

Lima Model 34 Paymaster Shovel with Cat Diesel Engine. 2 years old. Excellent condition.

ANDERSON EQUIPMENT CO.
P. O. Box 427 Bridgeville, Pa.
Phone Lehigh 1-6020

FOR SALE

650-B Bucyrus Erie Elc. Drag, 195', 16 yd.
15-W Bucyrus Erie Elec. Drag, 215', 13 yd.
9-W Bucyrus Erie Diesel Drag, 175', 13 yd.
7400 Marion Elec. Drag, 160', 13 yd.
625 Page Diesel Drag, 150', 10 yd.
723 Page Diesel Drag, 130', 10 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W Bucyrus Erie Diesel Drag, 125', 6 yd.
7-W Bucyrus Erie Diesel Drag, 180', 5 yd.
5-W Bucyrus Erie Diesel Drag, 100', 6 yd.
2400 Lima Dragline, 130', 5 yd.
4500 Manitowoc Drag, 120', 5 yd.
88-B Bucyrus Erie Drag, 90', 4½ yd.
111-M Marion Drag, 80', 4 yd.
1055 P & H Dragline, 80', 2½ yd.
3900 Manitowoc Speedcrane, 100' boom
5560 Marion 26 yd. Elec. Shovel
750-B Bucyrus Erie 20 yd. Elec. Shovel
5480 Marion 18 yd. Elec. H. L. Shovel
170-B Bucyrus Erie 6½ yd. Elec. Shovel
120-B Bucyrus Erie 4 yd. Elec Shovel
4500 Manitowoc 5 yd. H. L. Shovel
111-M Marion Standard & H. L. Shovels
3500 Manitowoc H.L. & Standard Shovels
54-B Bucyrus Erie H.L. & Standard Shovels
Large selection of smaller Shovels and Draglines available
Model T-750 Reich Truck Mounted Rotary and Down-the-Hole Drill
McCarthy & Compton Coal Auger Drills
Euclid Trucks, Truck Cranes, Dozers, Scrapers, Front End Loaders

FRANK SWABB
Equipment Co., Inc.

313 Hazleton Nat'l Bank Bldg.
Hazleton, Pa., GLadstone 5-3658

ADVERTISER'S INDEX

DECEMBER, 1958

Anderson Equipment Co. 32
Austin Powder Company ..... 4th Cover
Beckwith Machinery Co. 2, 3, 15, 16, 17, 18, 30, 31
Fish, J. T. 29
Highway Equipment Co. ..... 1st, 2nd, 3rd Cover, 25
Jeffrey Manufacturing Co., The 27
Maximon Machine Co., Inc. 26
Northeastern Incorporated 32
Ohio Machinery Co. 15, 16, 17, 18
Salem Tool Co., The 1, 5
Scottdale Machine Foundry and Construction Co. 28
Swabb, Frank 8, 32
Walker Machinery Co. 15, 16, 17, 18
Woodings, Robt. T. Inc. 5

● A new seat belt, designed to increase operator safety and comfort when working in rough terrain, has been made available for Caterpillar-built track-type Tractors, according to a recent announcement by the manufacturer.

The new seat belt available for Caterpillar track-type Tractors incorporates a fastener which connects the belt at its mid-point. This provides secure holding ability, but also allows the operator to instantly disengage the belt.

The design of the belt provides secure holding ability, yet allows the operator to instantly disengage the belt fastener, which incorporates an over-center latch. The fastener connects the belt at its midpoint, and requires no "threading" as is required with buckle-type belts.

Seat belt attachments are available for all current models, as well as all former Cat-built track-type tractors.

"most likely to succeed" ...equipment from Highway

Highway

25th Anniversary HIGHWAY EQUIPMENT CO. 1933 - 1958

HIGHWAY EQUIPMENT COMPANY
6465 Hamilton Ave. • Pittsburgh 6, Pa.
40 Hoover Ave. • Du Bois, Pa.

Coal operators everywhere agree that Highway sells, services and guarantees equipment "most likely to succeed" in speeding production and cutting costs.

So, regardless of the nature or size of your requirements, call your Highway representative today. AA-8192

Allis-Chalmers HD-21... KEYSTONE VALLEY COAL CO., New Castle.

Allis-Chalmers • Lima Shovels, Cranes, Draglines • Master • Thor Power-Pack Conveyors • Gar Wood • Lima Roadpackers Jaeger • Michigan Tractor Shovels and Excavator-Cranes

Allis-Chalmers HD-21... BEENER & CRAMER COAL CO., Rockwood.

Austin AP-10 end mill type (top) and AP-10D plug type cutter bits.

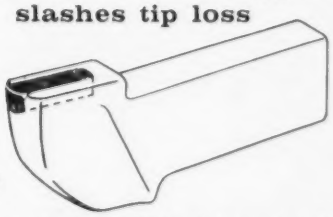
Austin Cutter Bits reduce mining costs

New AP-10 end mill and AP-10D plug type cutter bits are precision manufactured by Austin Powder to penetrate faster . . . last longer . . . reduce mining costs.

Carbide inserts are brazed in special alloy steel shanks to assure strongest possible support. As a result, tool failure, due to tip loss, is virtually eliminated even under most severe cutting conditions. This assures more production time, less time lost in bit changes.

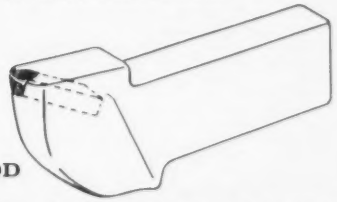
Your Austin representative will gladly show you how these and other features of AP bits can improve your operations. Call him today! AA-8926

Maximum carbide support slashes tip loss



AP-10

Three sides and extreme end of carbide insert in Austin end mill type bit are brazed to shank.



AP-10D

Entire surface of carbide insert in Austin plug type bit with exception of cutting edge is brazed to shank.

USED IN 1833 AUSTIN & EVER SINCE

AUSTIN
POWDER COMPANY
CLEVELAND 13, OHIO

Bellaire, O. Brookville, Pa. Chapmanville, W. Va. Charleston, W. Va. Coaldale, W. Va. Evansville, Ind. Grundy, Va.
Hazard, Ky. Madisonville, Ky. Masontown, W. Va. Matewan, W. Va. Mt. Hope, W. Va. Waynesburg, Pa.